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Search Results - Record(s) 1 through 13 of 13 returned.

☐ 1. Document ID: US 20030130854 A1

L12: Entry 1 of 13 File: PGPB Jul 10, 2003

PGPUB-DOCUMENT-NUMBER: 20030130854
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20030130854 A1

TITLE: Application abstraction with dialog purpose

PUBLICATION-DATE: July 10, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Galanes, Francisco M.	Kirkland	WA	US	
Hon, Hsiao-Wuen	Bellevue	WA	US	
Jacoby, James D.	Snohomish	WA	US	
Lecoueche, Renaud J.	Bellevue	WA	US	
Potter, Stephen F.	Seattle	WA	US	

US-CL-CURRENT: 704/277

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC | Draw Desc
Image

☐ 2. Document ID: US 20030061029 A1

L12: Entry 2 of 13 File: PGPB Mar 27, 2003

PGPUB-DOCUMENT-NUMBER: 20030061029
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20030061029 A1

TITLE: Device for conducting expectation based mixed initiative natural language dialogs

PUBLICATION-DATE: March 27, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Shaket, Efraim	Netanya		IL	

US-CL-CURRENT: 704/9

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC | Draw Desc
Image

☐ 3. Document ID: US 20030023435 A1

L12: Entry 3 of 13 File: PGPB Jan 30, 2003

PGPUB-DOCUMENT-NUMBER: 20030023435
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20030023435 A1

TITLE: Interfacing apparatus and methods

PUBLICATION-DATE: January 30, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Josephson, Daryl Craig	Burlingame	CA	US	

US-CL-CURRENT: 704/235

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWMC | Draw. Desc | Image

☐ 4. Document ID: US 20020198719 A1

L12: Entry 4 of 13 File: PGPB Dec 26, 2002

PGPUB-DOCUMENT-NUMBER: 20020198719
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20020198719 A1

TITLE: Reusable voiceXML dialog components, subdialogs and beans

PUBLICATION-DATE: December 26, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Gergic, Jaroslav	Kocbere	CT	CZ	
Hosn, Rafah A.	Stamford	CT	US	
Kleindienst, Jan	Kladno	CA	CZ	
Maes, Stephane H.	Danbury		US	
Raman, Thiruvilwamalai V.	San Jose		US	
Sedivy, Jan	Praha		CZ	
Seredi, Ladislav	Praha		CZ	

US-CL-CURRENT: 704/270.1

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWMC | Draw. Desc | Image

☐ 5. Document ID: US 20020129342 A1

L12: Entry 5 of 13 File: PGPB Sep 12, 2002

PGPUB-DOCUMENT-NUMBER: 20020129342

PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20020129342 A1

TITLE: Data mining apparatus and method with user interface based ground-truth tool and user algorithms

PUBLICATION-DATE: September 12, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Kil, David	Gilroy	CA	US	
Bradley, Andrew	Huntington Beach	CA	US	

US-CL-CURRENT: 717/137

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC | Draw Desc | Image

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☐ 6. Document ID: US 20020016710 A1

L12: Entry 6 of 13 File: PGPB Feb 7, 2002

PGPUB-DOCUMENT-NUMBER: 20020016710
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20020016710 A1

TITLE: Assigning meanings to utterances in a speech recognition system

PUBLICATION-DATE: February 7, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Strong, Robert Don	San Jose	CA	US	

US-CL-CURRENT: 704/255

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC | Draw Desc | Image

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☐ 7. Document ID: US 6311157 B1

L12: Entry 7 of 13 File: USPT Oct 30, 2001

US-PAT-NO: 6311157
DOCUMENT-IDENTIFIER: US 6311157 B1

TITLE: Assigning meanings to utterances in a speech recognition system

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC | Draw Desc | Image

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☐ 8. Document ID: US 6094635 A

L12: Entry 8 of 13 File: USPT Jul 25, 2000

US-PAT-NO: 6094635
DOCUMENT-IDENTIFIER: US 6094635 A

TITLE: System and method for speech enabled application

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWMC | Draw Desc
Image

☐ 9. Document ID: US 6061512 A

L12: Entry 9 of 13 File: USPT May 9, 2000

US-PAT-NO: 6061512
DOCUMENT-IDENTIFIER: US 6061512 A

TITLE: Methods and apparatus for creating automated servers for display telephones

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWMC | Draw Desc
Image

☐ 10. Document ID: US 5983190 A

L12: Entry 10 of 13 File: USPT Nov 9, 1999

US-PAT-NO: 5983190
DOCUMENT-IDENTIFIER: US 5983190 A
**** See image for Certificate of Correction ****

TITLE: Client server animation system for managing interactive user interface characters

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWMC | Draw Desc
Image

☐ 11. Document ID: US 5613036 A

L12: Entry 11 of 13 File: USPT Mar 18, 1997

US-PAT-NO: 5613036
DOCUMENT-IDENTIFIER: US 5613036 A

TITLE: Dynamic categories for a speech recognition system

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWMC | Draw Desc
Image

☐ 12. Document ID: US 5390279 A

L12: Entry 12 of 13 File: USPT Feb 14, 1995

US-PAT-NO: 5390279
DOCUMENT-IDENTIFIER: US 5390279 A

TITLE: Partitioning speech rules by context for speech recognition

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Image | KWIC | Draw Desc

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☐ 13. Document ID: US 5384892 A

L12: Entry 13 of 13 File: USPT Jan 24, 1995

US-PAT-NO: 5384892
DOCUMENT-IDENTIFIER: US 5384892 A

TITLE: Dynamic language model for speech recognition

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Image | KWIC | Draw Desc

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Terms	Documents
L11 and (interface same speech)	13

Display Format: - Change Format

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WEST Search History

DATE: Wednesday, September 17, 2003

Set Name side by side	Query	Hit Count	Set Name result set
DB=USPT,PGPB,JPAB; PLUR=YES; OP=OR			
L12	L11 and (interface same speech)	13	L12
L11	L10 and human and interact$	32	L11
L10	L4 and (flow or tree or graph) and (speech or spoken)	62	L10
L9	L and (flow or tree or graph) and (speech or spoken)	12076	L9
L8	L7 and (speech or spoken)	1	L8
L7	L6 and tree	13	L7
L6	L5	27	L6
L5	L4 and (human same computer same interact$)	27	L5
L4	L3 and (dialog or dialogue)	269	L4
L3	object same (interpreter or interpretor)	1844	L3
L2	L1 and (interpreter or interpretor)	1	L2
L1	6246981	15	L1

END OF SEARCH HISTORY

WEST Search History

DATE: Wednesday, September 17, 2003

Set Name side by side	Query	Hit Count	Set Name result set
DB=USPT,PGPB,JPAB; PLUR=YES; OP=OR			
L15	L1 and l12	12	L15
L14	l10 and L12	2	L14
L13	l11 and L12	0	L13
L12	flow same (dialog or dialogue) same interpret$	63	L12
L11	L9 and interpreter and associated	62	L11
L10	L9 and (associated and instan$)	77	L10
L9	L5 and (translat$ same (classes or class or object))	79	L9
L8	L7 and (translat$ same (classes or class or object))	63	L8
L7	L6 and (file same (object or data))	82	L7
L6	L5 and (transition or markov$)	104	L6
L5	L4 and (spoken or convers$)	172	L5
L4	L3 and (flow or graph or graphical)	221	L4
L3	L1 and (interpre$ same object)	230	L3
L2	L1 and (interpre$ same objec)	0	L2
L1	speech and recogn$ and (dialog or dialogue) and human and computer	1376	L1

END OF SEARCH HISTORY

WEST Search History

DATE: Thursday, September 11, 2003

Set Name side by side	Query	Hit Count	Set Name result set
DB=USPT,PGPB,JPAB; PLUR=YES; OP=OR			
L10	l7 and l2	4	L10
L9	l7 and l5	5	L9
L8	l4 not L7	26	L8
L7	L4 and strength	7	L7
L6	L4 amd strength	910037	L6
L5	L4 and rule	9	L5
L4	L1 and (netlist or net) and channel	33	L4
L3	L2 and netlist	3	L3
L2	L1 and (drc or (design same rule))	9	L2
L1	gate same noise same check$	348	L1

END OF SEARCH HISTORY

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Search Results - Record(s) 1 through 12 of 12 returned.

☑ 1. Document ID: US 20030051037 A1

L15: Entry 1 of 12 File: PGPB Mar 13, 2003

PGPUB-DOCUMENT-NUMBER: 20030051037
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20030051037 A1

TITLE: Open portal interface manager

PUBLICATION-DATE: March 13, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Sundaram, Mukesh	San Jose	CA	US	
Dharmadhikari, Rajiv	Milpitas	CA	US	

APPL-NO: 09/ 993802 [PALM]
DATE FILED: November 5, 2001

RELATED-US-APPL-DATA:
Application is a non-provisional-of-provisional application 60/297837, filed June 12, 2001,

INT-CL: [07] G06 F 15/16

US-CL-PUBLISHED: 709/227
US-CL-CURRENT: 709/227

REPRESENTATIVE-FIGURES: 2

ABSTRACT:

Call control operations are performed at an application server communicatively coupled as a session initiation protocol (SIP) proxy between a media gateway and a media server according to application profiles for one or more automated communication applications to be executed by the media server according to voice extensible markup language (VXML) instructions, the call control operations being performed in response to events that occur during execution of the automated communication applications, said events including failures of the automated communication applications. The events may be one or more of: a timeout or other errors during communication between the media server and a document server, a call transfer process initiated by the media server, a call queuing operation initiated by the media server, a script execution initiated by an enterprise call router communicatively coupled to the application server, or a carrier-based transfer connect process requested by the media server.

RELATED APPLICATION

[0001] This application is related to and hereby claims the priority date of U.S. Provisional Application No. 60/297,837, entitled "Open Portal Interface Manager",

filed Jun. 12, 2001 by the present inventors.

☐ 2. Document ID: US 20030016252 A1

L15: Entry 2 of 12 File: PGPB Jan 23, 2003

PGPUB-DOCUMENT-NUMBER: 20030016252
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20030016252 A1

TITLE: Method and system for implicitly resolving pointing ambiguities in human-computer interaction (HCI)

PUBLICATION-DATE: January 23, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Noy, David	Tel Aviv		IL	
Yeshurun, Yehezkel	Givatayim		IL	

ASSIGNEE-INFORMATION:

NAME	CITY	STATE	COUNTRY	TYPE CODE
RAMOT UNIVERSITY AUTHORITY FOR APPLIED RESEARCH &INUSTRIAL DEVELOPMENT, LTD.				03

APPL-NO: 09/ 824045 [PALM]
DATE FILED: April 3, 2001

INT-CL: [07] G06 F 3/00

US-CL-PUBLISHED: 345/856; 345/860
US-CL-CURRENT: 345/856; 345/860

REPRESENTATIVE-FIGURES: 4

ABSTRACT:

A method and system for implicitly resolving pointing ambiguities in human-computer interaction by implicitly analyzing user movements of a pointer toward a user targeted object located in an ambiguous multiple object domain and predicting the user targeted object, using different categories of heuristic (statically and/or dynamically learned) measures, such as (i) implicit user pointing gesture measures, (ii) application context, and (iii) number of computer suggestions of each predicted user targeted object. Featured are user pointing gesture measures of (1) speed-accuracy tradeoff, referred to as total movement time (TMT), and, amount of fine tuning (AFT) or tail-length (TL), and, (2) exact pointer position. A particular application context heuristic measure used is referred to as containment hierarchy. The invention is widely applicable to resolving a variety of different types of pointing ambiguities such as composite object types of pointing ambiguities, involving different types of pointing devices, and which are widely applicable to essentially any type of software and/or hardware methodology involving using a pointer, such as in computer aided design (CAD), object based graphical editing, and text editing.

☐ 3. Document ID: US 20020198719 A1

L15: Entry 3 of 12 File: PGPB Dec 26, 2002

PGPUB-DOCUMENT-NUMBER: 20020198719
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20020198719 A1

TITLE: Reusable voiceXML dialog components, subdialogs and beans

PUBLICATION-DATE: December 26, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Gergic, Jaroslav	Kocbere	CT	CZ	
Hosn, Rafah A.	Stamford	CT	US	
Kleindienst, Jan	Kladno	CA	CZ	
Maes, Stephane H.	Danbury		US	
Raman, Thiruvilwamalai V.	San Jose		US	
Sedivy, Jan	Praha		CZ	
Seredi, Ladislav	Praha		CZ	

ASSIGNEE-INFORMATION:

NAME	CITY	STATE	COUNTRY	TYPE CODE
International Business Machines Corporation	Armonk	NY		03

APPL-NO: 10/ 007084 [PALM]
DATE FILED: December 4, 2001

RELATED-US-APPL-DATA:
Application is a non-provisional-of-provisional application 60/251085, filed December 4, 2000,

INT-CL: [07] G10 L 21/00

US-CL-PUBLISHED: 704/270.1
US-CL-CURRENT: 704/270.1

REPRESENTATIVE-FIGURES: 5

ABSTRACT:

Systems and methods for building speech-based applications using reusable dialog components based on VoiceXML (Voice eXtensible Markup Language). VoiceXML reusable dialog components can be used for building a voice interface for use with multi-modal, multi-channel and conversational applications that offer universal access to information anytime, from any location, using any pervasive computing device regardless of its I/O modality. In one embodiment, a framework for reusable dialog components built within the VoiceXML specifications is based on the <subdialog> tag and ECMAScript parameter objects to pass parameters, configuration and results. This solution is interpreted at the client side (VoiceXML browser). In another embodiment, a framework for reusable dialog components is based on JSP (Java Server Pages) and beans that generate VoiceXML subdialogs. This solution can be evaluated at the server side. These frameworks can be mixed and matched depending on

the application.

CROSS-REFERENCE TO RELATED APPLICATION

[0001] This application is based on, and claims priority to, U.S. Provisional Application No. 60/251,085, filed on Dec. 4, 2000, which is fully incorporated herein by reference.

☐ 4. Document ID: US 20020091991 A1

L15: Entry 4 of 12 File: PGPB Jul 11, 2002

PGPUB-DOCUMENT-NUMBER: 20020091991
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20020091991 A1

TITLE: Unified real-time microprocessor computer

PUBLICATION-DATE: July 11, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Castro, Juan Carlos	Miami	FL	US	

APPL-NO: 09/ 852834 [PALM]
DATE FILED: May 10, 2001

RELATED-US-APPL-DATA:
Application is a non-provisional-of-provisional application 60/203575, filed May 11, 2000,

INT-CL: [07] G06 F 9/44

US-CL-PUBLISHED: 717/106
US-CL-CURRENT: 717/106

REPRESENTATIVE-FIGURES: 8

ABSTRACT:

A multiport revolving chambered homing binary hunting metallic track encasing hermetic data link caster dart castings constrained new software parallel redundancy cosmos robotizing unified real-time microprocessor machine language computer whose universal dominion domain outline involves automatizing real-time holistically steady state synchronized ubiquitous continuum sub-loculated cyclical parallel redundancy cosmos robotizing unified real-time microprocessor computer logic instructions of multiport revolving chambered homing binary hunting metallic track encasing hermetic data link caster dart castings constrained new end-user graphical human apostrophe interface syntactic synthesis real-time software programs block; multiport revolving chambered homing binary hunting metallic track encasing hermetic data link caster dart castings constrained new algebraic problem-solving application syntactic synthesis real-time software programs block; multiport revolving chambered homing binary hunting metallic track encasing hermetic data link caster dart castings constrained new robotizing gauge indicating guidance syntactic synthesis real-time software programs block; multiport revolving chambered homing binary hunting metallic track encasing hermetic data link caster dart castings constrained

new commerce and transactional exchange methodology syntactic synthesis real-time software programs block; multiport revolving chambered homing binary hunting metallic track encasing hermetic data link caster dart castings constrained new commerce and trade languages combinatorial syntactic synthesis real-time software programs block; a complete real-time microprocessor logic instructing compact integrated originating real-time software generator AND-OR closed-circuitry microprocessor operating system block concretizing rubric identic automatizing real-time holistically steady state synchronized ubiquitous continuum universal executive microprogrammable systematic codified microprocessor machine language logic operator instructions of one-time programmable read-only memory (PROM); a multiport revolving chambered homing binary hunting metallic track encasing hardcore software accumulator controlling central processing unit (CPU).

CROSS-REFERENCE TO RELATED APPLICATION

[0001] This application is entitled to the benefit of Provisional Patent Application titled "Real-Time Capital Market Operating System," assigned Serial No. 60/203,575, filed on May 11, 2000.

☐ 5. Document ID: US 6606596 B1

L15: Entry 5 of 12 File: USPT Aug 12, 2003

US-PAT-NO: 6606596
DOCUMENT-IDENTIFIER: US 6606596 B1

TITLE: System and method for the creation and automatic deployment of personalized, dynamic and interactive voice services, including deployment through digital sound files

DATE-ISSUED: August 12, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Zirngibl; Michael	Washington	DC		
Patnaik; Anurag	Arlington	VA		
Maass; Bodo	Arlington	VA		
Eberle; Hannes	Arlington	VA		

ASSIGNEE-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
Microstrategy, Incorporated	Vienna	VA			02

APPL-NO: 09/ 454598 [PALM]
DATE FILED: December 7, 1999

PARENT-CASE:
This application claims the benefit of Provisional application Ser. No. 60/153,222 , filed Sep. 13, 1999.

INT-CL: [07] G10 L 21/06, G10 L 15/28, G10 L 17/00, G06 F 15/16, G09 G 5/00

US-CL-ISSUED: 704/270; 704/246, 704/251, 704/231, 345/752, 709/206
US-CL-CURRENT: 704/270; 345/752, 704/231, 704/246, 704/251, 709/206

FIELD-OF-SEARCH: 704/270, 704/270.1, 704/275, 704/260, 704/231, 704/241, 704/251, 345/752, 709/206

PRIOR-ART-DISCLOSED:

U.S. PATENT DOCUMENTS

PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
4156868	May 1979	Levinson	704/251
4633293	December 1986	Powers	348/441
4757525	July 1988	Matthews et al.	379/88.26
4812843	March 1989	Champion, III et al.	340/905
4837798	June 1989	Cohen et al.	379/88.14
4868866	September 1989	Williams, Jr.	702/9
4941168	July 1990	Kelly, Jr.	379/69
4953085	August 1990	Atkins	705/36
4972504	November 1990	Daniel, Jr. et al.	705/10
4989141	January 1991	Lyons et al.	705/36
5021953	June 1991	Webber et al.	705/6
5045932	September 1991	Sharman et al.	358/527
5101352	March 1992	Rembert	705/8
5128861	July 1992	Kagami et al.	705/10
5168445	December 1992	Kawashima et al.	705/10
5189608	February 1993	Lyons et al.	705/30
5204821	April 1993	Inui et al.	700/106
5235680	August 1993	Bijnagate	707/10
5237499	August 1993	Garback	705/5
5243433	September 1993	Hailey	348/445
5270922	December 1993	Higgins	705/37
5284598	February 1994	Subramanyam et al.	348/441
5327235	July 1994	Richards	348/441
5331346	July 1994	Shields et al.	348/441
5347632	September 1994	Filepp et al.	709/202
5371787	December 1994	Hamilton	379/386
5404400	April 1995	Hamilton	379/386
5406626	April 1995	Ryan	704/275
5444491	August 1995	Lim	348/441
5457904	October 1995	Colvin	40/119
5479491	December 1995	Garcia et al.	379/88.16
5500793	March 1996	Deming, Jr. et al.	705/37
5502637	March 1996	Beaulieu et al.	705/36
5519438	May 1996	Elliott et al.	348/441
5532749	July 1996	Hong	348/441
5537157	July 1996	Washino et al.	348/722
5555403	September 1996	Cambot et al.	707/4
5572643	November 1996	Judson	709/218
5572644	November 1996	Liaw et al.	707/531
5576951	November 1996	Lockwood	705/27
5577165	November 1996	Takebayashi et al.	704/275
5590181	December 1996	Hogan et al.	379/114.1
5600377	February 1997	David et al.	348/441
5604528	February 1997	Edwards et al.	725/25

5608464	March 1997	Woodham	348/441
5617218	April 1997	Rhodes	348/441
5630060	May 1997	Tang et al.	709/238
5638424	June 1997	Denio et al.	379/88.8
5638425	June 1997	Meador, III et al.	704/231
5664115	September 1997	Fraser	705/37
5684992	November 1997	Abrams et al.	709/314
5689650	November 1997	McClelland et al.	705/36
5692181	November 1997	Anand et al.	707/102
5701383	December 1997	Russo et al.	386/46
5701451	December 1997	Rogers et al.	707/1
5706442	January 1998	Anderson et al.	205/27
5710889	January 1998	Clark et al.	235/379
5712901	January 1998	Meermans	
5715370	February 1998	Luther et al.	704/270.1
5717923	February 1998	Dedrick	207/102
5724101	March 1998	Haskin	348/441
5724410	March 1998	Parvulescu et al.	379/88.12
5724525	March 1998	Beyers, II et al.	705/40
5732216	March 1998	Logan et al.	704/201
5737393	April 1998	Wolf	379/88.13
5740829	April 1998	Jacobs et al.	137/15.08
5742429	April 1998	Wang et al.	707/104.1
5742775	April 1998	King	705/38
5748959	May 1998	Reynolds	709/106
5754248	May 1998	Faroudja	348/441
5754858	May 1998	Broman et al.	717/111
5754939	May 1998	Herz et al.	455/3.04
5757644	May 1998	Jorgensen et al.	704/201
5758088	May 1998	Bezaire et al.	709/232
5758351	May 1998	Gibson et al.	707/104.1
5761432	June 1998	Bergholm et al.	709/226
5764736	June 1998	Shachar et al.	379/93.09
5765028	June 1998	Gladden	706/25
5771073	June 1998	Lim	348/441
5771172	June 1998	Yamamoto et al.	700/106
5771276	June 1998	Wolf	379/88.16
5781735	July 1998	Southard	709/224
5781886	July 1998	Tsujiuchi	704/275
5787151	July 1998	Nakatsu et al.	379/88.23
5787278	July 1998	Barton et al.	707/1
H1743	August 1998	Graves et al.	700/80
5790936	August 1998	Dinkins	455/3.05
5794246	August 1998	Sankaran et al.	707/101
5797124	August 1998	Walsh et al.	704/275
5799063	August 1998	Krane	379/88.17
5799156	August 1998	Hogan et al.	709/237
5802488	September 1998	Edatsune	704/231
5802526	September 1998	Fawcett et al.	707/104.1
5806050	September 1998	Shinn et al.	705/37
5809483	September 1998	Broka et al.	705/37

5812204	September 1998	Baker et al.	348/441
5812987	September 1998	Luskin et al.	705/36
5819220	October 1998	Sarukkai et al.	704/270.1
5819293	October 1998	Comer et al.	707/203
5825856	October 1998	Porter et al.	379/93.12
5832085	November 1998	Inoue et al.	348/441
5832451	November 1998	Flake et al.	705/5
5835150	November 1998	Choi	348/441
5838381	November 1998	Kasahara et al.	348/441
5838768	November 1998	Sumar et al.	379/88.14
5848397	December 1998	Marsh et al.	705/14
5850433	December 1998	Rondeau	379/218
5852811	December 1998	Atkins	705/36
5852819	December 1998	Beller	707/1
5854746	December 1998	Yamamoto et al.	700/106
5857191	January 1999	Blackwell, Jr. et al.	707/10
5864827	January 1999	Wilson	705/35
5864828	January 1999	Atkins	705/36
5867153	February 1999	Grandcolas et al.	705/39
5870454	February 1999	Dahlen	379/88.14
5870724	February 1999	Lawlor et al.	705/42
5870746	February 1999	Knutson et al.	707/101
5872921	February 1999	Zahariev	709/203
5872926	February 1999	Levac et al.	709/206
5878403	March 1999	DeFrancesco et al.	705/35
5880726	March 1999	Takiguchi et al.	345/781
5884262	March 1999	Wise et al.	704/270.1
5884266	March 1999	Dvorak	704/220
5884285	March 1999	Atkins	705/36
5884312	March 1999	Dustan et al.	707/10
5890140	March 1999	Clark et al.	705/35
5893079	April 1999	Cwenar	708/36
5893905	April 1999	Main et al.	705/11
5907598	May 1999	Mandalia et al.	379/100
5907837	May 1999	Ferrel et al.	707/3
5911135	June 1999	Atkins	705/36
5911136	June 1999	Atkins	705/36
5913202	June 1999	Motoyama	705/35
5914878	June 1999	Yamamoto et al.	700/106
5915001	June 1999	Uppaluru	704/270.1
5915238	June 1999	Tjaden	704/260
5918217	June 1999	Maggioncalda et al.	705/36
5918225	June 1999	White et al.	707/3
5918232	June 1999	Pouschine et al.	707/103R
5920848	July 1999	Schutzer et al.	705/42
5923736	July 1999	Shachar	379/93.17
5924068	July 1999	Richard et al.	704/260
5926789	July 1999	Barbara et al.	704/270
5931900	August 1999	Notani et al.	709/201
5933816	August 1999	Zeanah et al.	705/35
5940818	August 1999	Malloy et al.	707/2

5943399	August 1999	Bannister et al.	379/88.17
5943410	August 1999	Shaffer et al.	379/213.01
5943677	August 1999	Hicks	707/205
5945989	August 1999	Freishtat et al.	345/760
5946666	August 1999	Nevo et al.	705/36
5946711	August 1999	Donnelly	711/152
5948040	September 1999	DeLorme et al.	705/5
5950165	September 1999	Shaffer et al.	704/270
5953392	September 1999	Rhie et al.	704/271
5956693	September 1999	Geerlings et al.	705/14
5960437	September 1999	Krawchuk et al.	707/102
5963641	October 1999	Crandall et al.	380/2
5974406	October 1999	Bisdikian et al.	707/1
5974441	October 1999	Rogers et al.	709/200
5978766	November 1999	Luciw	705/1
5978796	November 1999	Malloy et al.	707/3
5983184	November 1999	Noguchi	704/275
5987586	November 1999	Byers	712/11
5991365	November 1999	Pizano et al.	379/88.13
5995945	November 1999	Notani et al.	705/28
5996006	November 1999	Speicher	705/1
5999526	December 1999	Garland et al.	370/352
6009383	December 1999	Mony	704/200
6011579	January 2000	Newlin	348/15
6012066	January 2000	Discount et al.	707/103R
6012083	January 2000	Savitzky et al.	709/202
6014427	January 2000	Hanson et al.	379/67.1
6014428	January 2000	Wolf	379/88.11
6016335	January 2000	Lacy et al.	379/67.1
6016336	January 2000	Hanson	379/88.23
6016478	January 2000	Zhang et al.	705/9
6018710	January 2000	Wynblatt et al.	704/275
6021181	February 2000	Miner et al.	379/88.23
6021397	February 2000	Jones et al.	705/36
6023714	February 2000	Hill et al.	707/513
6026087	February 2000	Mirashrafi et al.	370/389
6031836	February 2000	Haserodt	310/389
6038561	March 2000	Snyder et al.	707/6
6047327	April 2000	Tso et al.	709/232
6055513	April 2000	Katz et al.	705/26
6064980	May 2000	Jacobi et al.	705/26
6078924	June 2000	Ainsbury et al.	707/101
6078994	June 2000	Carey	711/133
6081815	June 2000	Spitznagel et al.	707/501
6094651	July 2000	Agrawal et al.	707/5
6094655	July 2000	Rogers et al.	707/10
6101241	August 2000	Boyce et al.	379/88.1
6101443	August 2000	Kato et al.	701/210
6101473	August 2000	Scott et al.	704/275
6108686	August 2000	Williams, Jr.	709/202
6115693	September 2000	McDonough et al.	705/10

6119095	September 2000	Morita	705/5
6122628	September 2000	Castelli et al.	707/5
6122636	September 2000	Malloy et al.	707/102
6134563	October 2000	Clancey et al.	707/563
6151582	November 2000	Huang et al.	705/8
6151601	November 2000	Papierniak et al.	707/10
6154527	November 2000	Porter et al.	379/88.18
6154766	November 2000	Yost et al.	709/201
6163774	December 2000	Lore et al.	707/2
6167379	December 2000	Dean et al.	705/9
6167383	December 2000	Henson	705/26
6173310	January 2001	Yost et al.	709/201
6181935	January 2001	Gossman et al.	455/433
6182052	January 2001	Fulton et al.	705/26
6182053	January 2001	Rauber et al.	705/28
6182153	January 2001	Hollberg et al.	709/515
6185558	February 2001	Bowman et al.	707/5
6233609	May 2001	Mittal	261/103
6236977	May 2001	Verba et al.	705/10
6243445	June 2001	Begeja et al.	379/39.01
6246981	June 2001	Papineni et al.	704/233
6253146	June 2001	Hanson et al.	701/202
6256659	July 2001	McLain, Jr. et al.	709/100
6260050	July 2001	Yost et al.	707/501.1
6263051	July 2001	Saylor et al.	379/88.17
6269393	July 2001	Yost et al.	709/201
6279033	August 2001	Selvarajan et al.	709/217
6279038	August 2001	Hogan et al.	709/224
6289352	September 2001	Proctor	707/102
6292811	September 2001	Clancey et al.	707/503
6301590	October 2001	Siow et al.	707/500
6304850	October 2001	Keller et al.	705/5
6314402	November 2001	Monaco et al.	704/275
6314533	November 2001	Novik et al.	714/39
6317750	November 2001	Tortolani et al.	707/103R
6336124	January 2002	Alam et al.	707/523
6385583	May 2002	Ladd et al.	704/270
6404858	June 2002	Farris et al.	379/82.02
6477549	November 2002	Hishida et al.	707/513
6480842	November 2002	Agassi et al.	707/4
2002/0065752	May 2002	Lewis	705/35

FOREIGN PATENT DOCUMENTS

FOREIGN-PAT-NO	PUBN-DATE	COUNTRY	US-CL
0878948	November 1998	EP	
0889627	January 1999	EP	

OTHER PUBLICATIONS

Friel et al ("An Automated Stock Price Delivery System Based on the GSM Short

Message Service", 1998 IEEE International Conference on Communications, pp. 1591-1595 vol. 3 .COPYRGT. Jun. 1998).*
Kilmartin et al ("Real Time Stock Price Distribution Utilising the GSM Short Messaging Service", 1997 IEEE International Conference on Personal Wireless Communications, pp. 399-403 .COPYRGT. Dec. 1997).*
Advertisement for Progressive Telecommunications Corporation's OPUS (undated).
KnowledgeX Workgroup Edition Publication (undated).
"Andyne Introduces Greater Flexibility for Database Queries; New Query Management Option Provides Enhanced Management for Enterprise--Wide Queries," Business Wire, Jan. 3, 1996. Available from the Dow Jones Interactive Web Site http://Ptg.djnr.com.

Catalano, Carla, "OLAP, Scheduling, Tuning for DBMSs," Computer World, Apr. 1, 1996. Available in Dow Jones Interactive, http://www.dowjonesinteractive.com.
Andyne's Intranet Strategy Brings DSS to the Web; Company Aims to Dramatically Broaden Scope of Reporting, Online Analysis, PR Newswire, Sep. 18, 1996. Available from the Dow Jones Interactive Web Site http://Ptg.djnr.com.
Sachs et al., "A First Step on the Path to Automated Flight Reservations," Interactive Voice Technology for Telecommunications, 1996.
Bennacef et al., "Dialog in the RAILTEL Telephone-Based System," Spoken Language, 1996.
Brooks, Peter, "Targeting Customer," DBMS, v9, n13, Dec. 1996, pp. 54-58.
"Sterling Software Announces Alliance with Thinking Machines," Business Wire, Dec. 16, 1996. Available from the Dow Jones Interactive Web Site http://Ptg.djnr.com.
Gupta et al., "Index Selection for OLAP," Proceedings of the 13.sup.th International Conference on Data Engineering, .COPYRGT. 1997.
Ho et al., "Partial-Sum Queries in OLAP Data Cubes Using Covering Codes," PODS'97 Tuscon, AZ USA.
Data Warehousing: Data Access and Delivery, Infobase Technology Database, 1997, http://www.dbaint.com/oldinfobase/dwaccdel.html.
Gardner, Dana Marie, "Cashing in With Data Warehouses and the Web," Data Based Advisor, v15, n2, Feb. 1997, pp. 60-63.
Intrepid Systems Announces General Availability of DecisionMaster 4.1; Retailing's Premier Decision Support Software Enhancements Automate Information Delivery, Business Wire, May 27, 1997. Available in Dow Jones Interactive, http://www.dowjonesinteractive.com.
Blue Isle Software InTouch/2000 Product Overview, Blue Isle Software, Inc. (archived Jul. 7, 1997), http://www.blueisle.com. Available in Internet Archive Waybackmachine http://www.archive.org.
"Blue Isle Software Teams with Arbor Software to Deliver Automated Systems Management Capabilities for Arbor Essbase," Business Wire, Oct. 29, 1997. Avaiable in LEXIS, Nexis Library, ALLNWS file.
"Early Warning: Compulogic's Dynamic Query Messenger," Software Futures, Nov. 1, 1997. Available in LEXIS, Nexis Library, ALLNWS file.
Kilmartin et al., "Development of an Interactive Voice Response System for a GSM SMS Based Share Price Server," DSP '97 Conference Proceedings, Dec. 1997, Abstract.
Avnur et al., "Control: Continuous Output and Navigation Technology with Refinement On-Line," .COPYRGT. 1998.
Liang et al., "Computing Multidimensional Aggregates in Parallel," 1998 International Conference on Parallel and Distributed Systems, IEEE.
Microstrategy Products and Services, 1998.
Personalized Information Broadcast Server, 1998.
"Information Advantage Wins Product of the Year Award for Knowledge Management," Business Wire, Mar. 4, 1998. Available in LEXIS, Nexis Library, ALLNWS file.
Emigh, Jacqueline, "Information Builders, Inc. Launches WebFocus Suit," Newbytes, Mar. 10, 1998. Available in Northern Light, http://www.northernlight.com, Doc. ID BS19980311010000172.
Microstrategy: DSS Broadcaster--The Industry's First Information Broadcast Server, M2 Presswire, Mar. 20, 1998. Available in Dow Jones Interactive http://www.djinteractive.com.
Microstrategy: DSS Broadcaster--The Industry's First Information Broadcast Server, Mar. 23, 1998.
http://strategy.com/newsandevent/New/PressRelease/1998/broadcaster.htm.
Microstrategy Introduces DSS Broadcaster--The Industry's First Information Broadcast Server, Mar. 23, 1998.
http://www.strategy.com/newsandevents/News/PressReleases/1998/broadcaster. htm.

"MSNBC on the Internet Launches New Traffic Section; MSNBC.com and Sidewalk.com Team with TrafficStation for Production of Comprehensive Site for Drivers," Financial News, Redmond, Wash., Apr. 5, 1998.
Prospectus--4,000,000 Shares Microstrategy Class A Common Stock, Jun. 11, 1998.
"System for Telephone Access to Internet Applications--Uses Dial Tones and/or Voice with Interactive Voice Response Unit to Pass Request to Processor that Converts Requests to Communication Protocol Command Set," IBM, Patent No. RD 98412088. Jul. 20, 1998, Abstract.
Relational OLAP Interface, Programmer's Reference and SDK Guide, Version 5.0, Aug. 1998.
Data Warehouse Dossier, Fall 1998.
"Microstrategy Announces Enhanced Versions of DSS Web and DSS Server," Oct. 26, 1998, http://www.strategy.com/NewsandEvents/news/pressreleases/1998/server5.5. htm.
System Guide DSS Web Version 5.5, Feb. 1999.
Developer Guide DSS Web version 5.5, Feb. 1999.
Media Output Book, v2.0, Feb. 16, 1999.
Computer Telephony, from www.telecomlibrary.com--Sep. 9, 1999.
Frequently Asked Questions About DSS Web, printed Feb. 23, 1999, http://www.strategy.com/products/Web/faq.htm.
"Traffic Station Extends Service to Six New Markets in North America, Reaching its Goal of 20 Markets by the New Millennium," Business Editors/Multimedia & Transportation Writers, Los Angeles, Dec. 23, 1999.
Traffic Station Corporate Information, http://www.trafficstation.com/home/corporate.html, Jan. 10, 2001.
Newswire, "Net Phones to Outsell Laptops by 2002", Dec. 2, 1998, Dialog File #03635692.
RCR Radio Communications Report, "Comverse Developing Unified Applications GSM Smartphone Marketplace", Feb. 23, 1998, V. 17, No. 8, p. 106, Dialog File #02078693.

America's Network, "Wireless Web Browsing: How Long Will Deployment Take? (There Will be 22 Mil Devices Other than PCs Accessing the Internet by 2000)", Dec. 15, 1996, vol. 100, No. 24, p. 30+, Dialog File #01708089.
Adali et al., "Query Caching and Optimization in Distributed Mediator Systems", SIGMOD '96, 6/96, Montreal, Canada, pp. 137-148.
Alur et al., "Directory--Driven Information Delivery", DataBase Associates Int'l, Jul. 1996, printed from http://web.archive.org on Jan. 7, 2002, 12 pages.
Chawathe et al., "Representing and Querying Changes in Semistructured Data", Proceedings of the 14.sup.th International Conference on Data Engineering, IEEE, Feb. 23-27, 1998, pp. 4-13.
Codd et al., "Providing OLAP (On-line Analytical Processing) to User-Analysts; an IT Mandate", San Jose, California, Codd and Date, 1993, 1 page.
Flohr, "Using Web-Based Applications to Perform On-Line Analyrical Processing Builds on the Strengths of Both Technologies", OLAP by Web, Sep. 1997, 8 pages.
Gesmann et al., "A Remote Cooperation System Supporting Interoperability in Heterogeneous Environments", Proceedings of the Third International Workshop on Research Issued in Data Engineering, IEEE, Apr. 19-20, 1993, pp. 152-160.
Hackathorn, "Solutions to Overworked Networks and Unruly Software Distribution are Just Part of P&S.", Publish or Perish, Sep. 1997, 21 pages.
Liscano et al., "Integrating Multi-Modal Messages across Heterogeneous Networks", IEEE, 1997, pp. 45-53, Abstract.
Liu et al., "Differential Evaluation of Continual Queries", Proceedings of the 16.sup.th International Conference on Distributed Computing Systems, IEEE, May 27-30, 1996, pp. 458-465.
Newing, "Relational Databases Are Not Suitable for Management Information Systems: And That's Official!", Management Accounting, London, vol. 72, No. 8, Sep. 1994, 4 pages.
Raden, "Teraforming the Data Warehouse", Archer Decision Sciences, printed from http://www.archer-decision.com on Jan. 16, 2002, 13 pages.
Scheier et al., Alert: An Architecture for Transforming a Passive DBMS into an Active DBMS, Proceedings of the 17.sup.th International Conference on Very Large Data Bases, Sep. 3-6, 1991, pp. 469-478.
Schultz, "ADEPT--The Advanced Database Environment for Planning and Tracking", Bell Labs Technical Journal, Jul.-Sep. 1998, pp. 3-9.
Spofford, "Attack of the Killer APIs", Intelligent Enterprise's Database Online Programming and Design, printed from http://www.dbpd.com on Dec. 21, 2001, 10 pages.

Stonebraker et al., "On Rules, Procedures, Caching and Views in Data Based Systems", Proceedings of the 1990 ACM SIGMOD International Conference on Management of Data, May 23-25, 1990, pp. 281-290.
Terry et al., "Continuous Queries over Append-Only Databases", Proceedings of the 1992 ACM SIGMOD International Conference on Management of Data, Jun. 2-5, 1992, pp. 321-330.
Search Results from Internet Archive Wayback Machine, search for http://www.infoadvan.com, printed from http://web.archive.org on Dec. 19, 2001, 40 pages.
Search Results from Internet Archive Wayback Machine, search for http://www.platinum.com, printed from http://web.archive.org on Dec. 21, 2001, 17 pages.
ROLAP Case Studies, 30 pages.
"Fast and Flexible Access to Databases", Bytes, Aug. 1997, pp. 53-54.
"Distributed Application Development with PowerBuilder 6.0", Manning Publications Co., printed from http://www.manning.com on Jan. 15, 2002, 12 pages.
"PowerBuilder 6.0 Questions & Answers", Manning Publications Co., printed from http://www.manning.com on Jan. 15, 2002, 13 pages.
"PowerBuilder 6.0 Questions & Answers", Manning Publications Co., printed from http://www.manning.com on Jan. 17, 2002, 2 pages.
Cheshire, "Product News--A Sea of Opportunity", Intelligent Enterprise's Database Online Programming and Design, printed from http://www.dbpd.com on Jan. 17, 2002, 6 pages.
"Information Advantage--Business Intelligence", "Live Information Repository . . . ", printed from http://www.infoadvan.com, on Dec. 19, 2001, 5 pages.
"Objective Data Inc.--Computer Software Consultants", Client List, printed from http://objectivedata.com/clients.htm on Jan. 15, 2002, 5 pages.
"Online Analytical Processing", printed from http://searchdatabase.techtarget.com on Jan. 18, 2002, 3 pages.
"Seagate Crystal Reports 8", printed from http://www.crystaluser.com on Dec. 28, 2001, 6 pages.
"Andyne Delivers Personal OLAP with PaBLO 4.0", Press Release, Mar. 31, 1997, Andyne Computing Limited, 5 pages.
"Andyne Announces Support for Microsoft's OLE DB for OLAP", Press Release, Sep. 10, 1997, Andyne Computing Limited, 4 pages.
"Andyne QMO--Manage Data Access", Andyne Computing, printed from http://web.archive.org on Jan 3, 2002, 5 pages.
"The Andyne Vision --On the Road to the Integrated Solution", Andyne Computing, printed from http://web.archive.org on Jan. 3, 2002, 11 pages.
"Visual Information Access for Multidimensional Companies . . . ", Andyne Corporate Profile, 2 pages.
"MicroStrategy Announces DSS Web 5.0; DSS Web Introduces the Web-Cast of Decision Support", MicroStrategy, Jan. 5, 1998, printed Dec. 10, 2001, 2 pages.
"MicroStrategy Introduces DSS Web Standard Edition; Web Interface Provides powerful, Easy-to-Use DSS Tool for Mainstream End-User Market", MicroStrategy, Apr. 27, 1998, printed Dec. 10, 201, 2 pages.
"MicroStrategy Advantages: Proven Multi-Tier Architecture", printed from http://web.archive.org, 4 pages.
"MicroStrategy `Consumerizes` the Data Warehouse with Its New 4.0 Product Line", Press Release, Jun. 24, 1996, MicroStrategy, printed from http://web.archive.org on Dec. 18, 2001, 7 pages.
"MicroStrategy Announces DSS Server 3.0", Press Release, Aug. 8, 1995, MicroStrategy, printed from http://web.archive.org, on Dec. 8, 2001, 5 pages.
"MicroStrategy Announces True Relational OLAP Product Line", Press Release, Aug. 8, 1995, MicroStrategy, printed from http://web.archive.org on Dec. 8, 2001, 5 pages.
"DSS Administrator Features Overview", MicroStrategy, No. 05090297, 2 pages.
"DSS Agent Features Overview", MicroStrategy, No. 05100896, 2 pages.
"DSS Server Feature Overview", MicroStrategy, No. 05140896, 2 pages.
"Relational OLAP Interface", DSS Agent, MicroStrategy, 22 pages and 20 pages.
"Relational OLAP Interface for the Web", MicroStrategy DSS Web Brochure, 4 pages.
"Arbor Software OLAP Products", Brochure, Arbor Software, 12 pages.
"InfoTrac OneFile", Database Programming & Design, vol. 11, No. 7, Jul. 1998, 12 pages.
"Andyne GQL Version 3.3.2 Available Jul. 17.sup.th ; Featuring Multi-Pass Reporting,

Time Governors and Scripting", Business Wire, Jun. 26, 1995, Andyne Computing Limited, 4 pages.
"MicroStrategy Announces DSS Server 3.0; Three-Tier Architecture Results in Exceptional Performance and Scalability for DSS Applications", Business Wire, Aug. 8, 1995, MicroStrategy, 3 pages.
"Information Advantage Ships DecisionSuite 3.0 Business Analysis Applications for Data Warehouses", Business Wire, Nov. 9, 1995, 3 pages.
"Information Advantage Announces WebOLAP; First Structured Content analysis Server for the World Wide Web", Business Wire, Feb. 5, 1996, 3 pages.
"Andyne Delivers Second Stage of the Andyne Integrated Solution", Canada NewsWire, May 13, 1996, 3 pages.
"Andyne Computing Ltd is Shipping Version 3.3.2 of Its GQL Decision Support System", CommunicationsWeek, No. 566, Jul. 17, 1995, p. 16.
"Andyne Computing Introduces New Query Management Option as Companion Product to Andyne's GQL Product", CommunicationsWeek, No. 592, Jan. 15, 1996, p. 16.
"Andyne Hopes to Benefit from Current Data Warehousing Hype with GQL Query Language", Computergram International, No. 2798, Nov. 22, 1995, 1 page.
"Andyne's GQL Makes It Easier--New Version of Reporting, Analysis Tool Unveiled", Computer Reseller News, No. 685, 1996, p. 79.
"The Right Tools", Computer Weekly, Aug. 29, 1996, 4 pages.
"4 OLAP Tools; The Common Thread is that OLAP Tools Drain Too Much Time and Energy Before You Get What You Need", Computerworld, Dec. 2, 1996, 4 pages.
"GQL", Data Management Review (DM Review), vol. 6, No. 5, May 1996, p. 47.
"DB2 Today Newsletter", Jun. 1999, 2 pages.
"GQL 3.2", DBMS, vol. 8, No. 1, Jan. 1995, 2 pages.
"Everything's Coming Up Warehouse", DBMS, Oct. 1, 1995, 3 pages.
"Query, Reporting, and Analysis Tools", DBMS, vol. 9, No. 6, Jun. 15, 1996, 14 pages.
Brooks, "MCI Leverages Data Warehouse Technology to Strengthen its Marketing Campaigns", DBMS, Dec. 1996, 7 pages.
Dobson, "Data Binding in Dynamic HTML", DBMS, Mar. 1998, 12 pages.
Dodd, "Native is as Native Does", HP Professional, vol. 12, No. 12, Feb. 1998, 1 page.
"Banking's New Payoff: Speed", InformationWeek, Jan. 17, 1994, 3 pages.
"Nailing Down More Query Tools", InformationWeek, vol. 523, Apr. 17, 1995, 7 pages.
Raden, "Data, Data Everwhere", InformationWeek, Oct. 30, 1995, pp. 60-65.
"Back-to-Back Upgrades--Vendors Introduce Reporting, Query Tools", InformationWeek, No. 598, Sep. 23, 1996, 1 page.
"Desktop OLAP Tools--If the Tool Fits, Use It--Online Analytical Processing Tools Offer Ease of Use for Data Retrieval and Analysis with Minimal User Training", InformationWeek, No. 605, Nov. 11, 1996, 3 pages.
"Pilot Gets Serious About OLAP", InformationWeek, Jul. 20, 1998, pp. 55-59.
"Oracle Announces Next Generation Oracle Express Server 6.0", M2 Presswire, Aug. 7, 1996, 5 pages.
"Andyne Updates GQL", Newsbytes, Jul. 12, 1994, 1 page.
"Andyne Computing Has Released Version 3.2.2 of Its GQL Query Software for Macintosh, Windows and Unix Platforms", Newsbytes News Network, Jul. 12, 1994, 4 pages.
"Data Access is Key to Warehousing Success", Open Systems Today, Oct. 3, 1994, 2 pages.
Phillips, "Crystal Eyes OLAP Engine", PC Week, vol. 13, No. 4, Jan. 29, 1996, 3 pages.
Dyck, "New Report Writer Spruces Up GQL", PC Week, vol. 14, No. 3, Jan. 20, 1997, 1 page.
"New Decision Suite 3.0 From Information Advantage Raises the Bar for Enterprise Decision Support", Newswire, Aug. 8, 1995, 3 pages.
"Andyne's Intranet Strategy Brings DSS to the Web; Company Aims to Dramatically Broaden Scope of Reporting, Online Analysis", PR Newswire, Sep. 18, 1996, 11 pages.
"NCR Adds OLAP Services to Extend and Expand Decision Support Capabilities of Teradata Database", PR Newswire, May 28, 1998, 3 pages.
"DecisionSuite 3.5", SoftBase, Sep. 12, 1996, 2 pages.
"IBM Acquires ITI's KnowledgeX Technology to Enhance Business Intelligence Solutions", Software News, Jul. 23, 1998, 1 page.
"Microstrategy Talks Crystal Balls", Software Futures, Apr. 1, 1997, 4 pages.
"Document Agent Administrator's Guide", Revision 3, BusinessObjects, Version 4.0,

pp. 1-29.
"Document Agent Server Administrator's Guide", Revision 4, BusinessObjects, Version 4.1, pp. 1-33.
"Getting Started with Reports", Revision 2, BusinessObjects, Version 4.0, pp. 1-53.
"Getting Started with Reports", Revision 3, BusinessObjects, Version 4.1, pp. 1-53.
"User's Guide", Revision 3, BusinessObjects, Version 4.0, pp. 1-251.
"User's Guide", Revision 4, BusinessObjects, Version 4.1, pp. 1-287.
Relational OLAP Server, Microstrategy; DSS Server Brochure, 1996.
Relational OLAP Interface of the Web, 1996.
"Data Warehouse and DSS Management Tools", DSS Administrator, MicroStrategy, 17 pages and 16 pages.
"OLE API for Custom Application Development", DSS Objects, MicroStrategy, 4 pages and 4 pages.
"Untied EasyUpdate", Untied Airlines, printed from http://www.ual.com/page/article/0,1360,1974,00,html, printed Nov. 30, 2002, 4 pages.

General Magic, Inc. website, printed from http://www.genmagic.com, printed Nov. 30, 2002, 16 pages.

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ABSTRACT:

A system and method for the creation and automatic deployment of personalized, dynamic and interactive voice services, including information derived from on-line analytical processing (OLAP) systems and other data repositories is disclosed. In particular, the system and method include the ability to deploy voice services through a digital sound file. The system and method access personalized information and generate personalized markup documents from the personalized information. The personalized markup document is used to generate a sound file that is made available to a subscriber of the voice service, for example, through an e-mail or by posting to a web site.

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U.S. PATENT DOCUMENTS

PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
4156868	May 1979	Levinson	704/251
4554418	November 1985	Toy	379/88.01
4757525	July 1988	Matthews et al.	319/88.26
4788643	November 1988	Trippe et al.	705/6
4811379	March 1989	Grandfield	379/88.14
4812843	March 1989	Champion, III et al.	340/905
4837798	June 1989	Cohen et al.	379/88.14
4868866	September 1989	Williams, Jr.	707/9
4941168	July 1990	Kelly	379/69
4942616	July 1990	Linstroth et al.	704/275
4953085	August 1990	Atkins	705/36
4972504	November 1990	Daniel, Jr. et al.	705/10
4989141	January 1991	Lyons et al.	705/36
5021953	June 1991	Webber et al.	705/6
5101352	March 1992	Rembert	705/8
5128861	July 1992	Kagami et al.	705/10
5168445	December 1992	Kawashima et al.	705/10
5187735	February 1993	Herrero Garcia et al.	379/88.17
5189608	February 1993	Lyons et al.	705/30
5204821	April 1993	Inui et al.	700/106
5214689	May 1993	O'Sullivan	379/88.1
5235680	August 1993	Bijnagte	707/10
5237499	August 1993	Garback	705/5

5270922	December 1993	Higgins	705/37
5347632	September 1994	Filepp et al.	709/202
5371787	December 1994	Hamilton	379/386
5404400	April 1995	Hamilton	379/386
5406626	April 1995	Ryan	705/51
5444768	August 1995	Lemaire et al.	379/68
5479491	December 1995	Herrero Garcia et al.	379/88.15
5500793	March 1996	Deming, Jr. et al.	705/37
5502637	March 1996	Beaulieu et al.	705/36
5524051	June 1996	Ryan	380/237
5555403	September 1996	Cambot et al.	707/4
5572643	November 1996	Judson	379/88.13
5572644	November 1996	Liaw et al.	707/531
5576951	November 1996	Lockwood	705/27
5577165	November 1996	Takebayashi et al.	704/275
5590181	December 1996	Hogan et al.	379/114.14
5604528	February 1997	Edwards et al.	725/25
5630060	May 1997	Tang et al.	709/238
5638424	June 1997	Meador et al.	379/88.01
5638425	June 1997	Denio et al.	379/88.18
5664115	September 1997	Fraser	705/37
5684992	November 1997	Abrams et al.	709/314
5689650	November 1997	McClelland et al.	705/36
5692181	November 1997	Anand et al.	707/102
5701451	December 1997	Rogers et al.	707/1
5706442	January.1998	Anderson et al.	705/27
5710889	January 1998	Clark et al.	235/379
5712901	January 1998	Meemans	379/88.14
5715370	February 1998	Luther et al.	704/270.1
5717923	February 1998	Dedrick	707/102
5727821	February 1998	Logan et al.	709/217
5724410	March 1998	Parvulescu et al.	379/88.18
5724525	March 1998	Beyers, II et al.	705/40
5732216	March 1998	Logan et al.	709/203
5732398	March 1998	Tagawa	705/5
5737393	April 1998	Wolf	379/88.13
5740429	April 1998	Wang et al.	707/104.1
5740829	April 1998	Jacobs et al.	137/15.08
5742775	April 1998	King	705/38
5748959	May 1998	Reynolds	709/106
5751790	May 1998	Makihata	379/71
5751806	May 1998	Ryan	380/237
5754858	May 1998	Broman et al.	717/111
5754939	May 1998	Herz et al.	455/3.04
5757644	May 1998	Jorgensen et al.	379/76
5758088	May 1998	Bezaire et al.	709/232
5758351	May 1998	Gibson et al.	707/104.1
5761432	June 1998	Bergholm et al.	709/226
5764736	June 1998	Shachar et al.	379/93.09
5765028	June 1998	Gladden	706/25
5771172	June 1998	Yamamoto et al.	700/106

5771276	June 1998	Wolf	379/88.16
5781735	July 1998	Southard	709/224
5781886	July 1998	Tsujiuchi	704/275
5787151	July 1998	Nakatsu et al.	379/88.23
5787278	July 1998	Barton et al.	707/1
H1743	August 1998	Graves et al.	700/236
5790936	August 1998	Dinkins	455/3.05
5793980	August 1998	Glaser et al.	709/231
5794246	August 1998	Sankaran et al.	707/101
5797124	August 1998	Walsh et al.	379/88.04
5799063	August 1998	Krane	379/88.17
5799156	August 1998	Hogan et al.	709/237
5802488	September 1998	Edatsune	704/231
5802526	September 1998	Fawcett et al.	707/104
5806050	September 1998	Shinn et al.	705/37
5809415	September 1998	Rossmann	455/422
5809483	September 1998	Broka et al.	705/37
5819220	October 1998	Sarukkai et al.	704/270.1
5819293	October 1998	Comer et al.	707/203
5825856	October 1998	Porter et al.	379/93.12
5832451	November 1998	Flake et al.	705/5
5838252	November 1998	Kikinis	340/7.21
5838768	November 1998	Sumar et al.	379/88.14
5848397	December 1998	Marsh et al.	705/14
5850433	December 1998	Rondeau	379/218.01
5852811	December 1998	Atkins	705/36
5852819	December 1998	Beller	707/1
5854746	December 1998	Yamamoto et al.	700/106
5857191	January 1999	Blackwell, Jr. et al.	707/10
5864827	January 1999	Wilson	705/35
5864828	January 1999	Atkins	705/36
5867153	February 1999	Grandcolas et al.	705/39
5870454	February 1999	Dahlen	379/88.14
5870724	February 1999	Lawlor et al.	705/42
5870746	February 1999	Knutson et al.	707/101
5872921	February 1999	Zahariev et al.	709/203
5872926	February 1999	Levac et al.	379/100.08
5878403	March 1999	DeFrancesco et al.	705/38
5880726	March 1999	Takiguchi et al.	345/781
5884262	March 1999	Wise et al.	704/270.1
5884266	March 1999	Dvorak	704/270.1
5884285	March 1999	Atkins	705/36
5884312	March 1999	Dustan et al.	709/206
5890140	March 1999	Clark et al.	705/35
5893079	April 1999	Cwenar	705/36
5893905	April 1999	Main et al.	709/224
5907598	May 1999	Mandalia et al.	379/100.01
5907837	May 1999	Ferrel et al.	707/3
5911135	June 1999	Atkins	705/36
5911136	June 1999	Atkins	705/36
5913202	June 1999	Motoyama	705/35

5914878	June 1999	Yamamoto et al.	700/106
5915001	June 1999	Uppaluru	379/88.22
5915238	June 1999	Tjaden	704/260
5918217	June 1999	Maggioncalda et al.	705/36
5918225	June 1999	White et al.	707/3
5918232	June 1999	Pouschine et al.	707/103
5920848	July 1999	Schutzer et al.	705/42
5923736	July 1999	Shachar	379/93.17
5924068	July 1999	Richard et al.	704/260
5926789	July 1999	Barbara et al.	704/270.1
5931900	August 1999	Notani et al.	709/201
5933816	August 1999	Zeanah et al.	705/35
5940818	August 1999	Malloy et al.	707/2
5943399	August 1999	Welzman	370/445
5943410	August 1999	Shaffer et al.	379/213.01
5943677	August 1999	Hicks	707/205
5945989	August 1999	Freishtat et al.	345/329
5946666	August 1999	Nevo et al.	705/36
5946711	August 1999	Donnelly	711/152
5948040	September 1999	DeLorme et al.	701/201
5950165	September 1999	Shaffer et al.	379/88.17
5953392	September 1999	Rhie et al.	379/88.13
5956693	September 1999	Geerlings	705/14
5960437	September 1999	Krawchuk et al.	707/102
5963641	October 1999	Crandall et al.	380/2
5970122	October 1999	LaPorta et al.	379/170
5970124	October 1999	Csaszar et al.	379/88.18
5974406	October 1999	Bisdikian et al.	707/1
5974441	October 1999	Rogers et al.	709/200
5978766	November 1999	Luciw	705/1
5978796	November 1999	Malloy et al.	707/3
5983184	November 1999	Noguchi	704/270
5987586	November 1999	Byers	712/11
5991365	November 1999	Pizano et al.	379/88.13
5995945	November 1999	Notani et al.	705/28
5996006	November 1999	Speicher	709/218
5999526	December 1999	Garland et al.	370/352
6003009	December 1999	Nishimura	705/5
6009383	December 1999	Mony	455/418
6011579	January 2000	Newlin	348/15
6012066	January 2000	Discount et al.	707/103R
6012083	January 2000	Savitzky et al.	709/202
6014427	January 2000	Hanson et al.	379/67.1
6014428	January 2000	Wolf	379/88.17
6014429	January 2000	LaPorta et al.	379/88.15
6016335	January 2000	Lacy et al.	379/67.1
6016336	January 2000	Hanson	379/88.23
6016478	January 2000	Zhang et al.	705/9
6018710	January 2000	Wynblatt et al.	704/260
6021181	February 2000	Miner et al.	379/88.23
6021397	February 2000	Jones et al.	705/36

6023714	February 2000	Hill et al.	707/513
6026087	February 2000	Mirashrafi et al.	370/389
6031836	February 2000	Haserodt	370/389
6185558	February 2000	Bowman et al.	707/5
6038561	March 2000	Snyder et al.	707/6
6047327	April 2000	Tso et al.	709/232
6055513	April 2000	Katz et al.	705/26
6064980	May 2000	Jacobi et al.	705/26
6078924	June 2000	Ainsbury et al.	707/101
6078994	June 2000	Carey	711/133
6094651	July 2000	Agrawal et al.	707/5
6094655	July 2000	Rogers et al.	707/10
6101241	August 2000	Boyce et al.	379/88.01
6101443	August 2000	Kato et al.	701/210
6101473	August 2000	Scott et al.	704/275
6115693	September 2000	McDonough et al.	705/10
6119095	September 2000	Morita	705/5
6122628	September 2000	Castelli et al.	707/5
6122636	September 2000	Malloy et al.	707/102
6134563	October 2000	Clancey et al.	707/503
6151582	November 2000	Huang et al.	705/8
6151601	November 2000	Papierniak et al.	707/10
6154527	November 2000	Porter et al.	379/88.18
6154766	November 2000	Yost et al.	709/201
6163774	December 2000	Lore et al.	707/2
6167379	December 2000	Dean et al.	705/9
6167383	December 2000	Henson	705/26
6173310	January 2001	Yost et al.	709/201
6181935	January 2001	Gossman et al.	455/433
6182052	January 2001	Fulton et al.	705/26
6182053	January 2001	Rauber et al.	705/28
6182153	January 2001	Hollberg et al.	709/315
6233609	May 2001	Mittal	709/219
6236977	May 2001	Verba et al.	705/10
6243445	June 2001	Begeja et al.	379/93.01
6246981	June 2001	Papineni et al.	704/235
6253146	June 2001	Hanson et al.	701/202
6256659	July 2001	McLain, Jr. et al.	709/100
6260050	July 2001	Yost et al.	707/501.01
6263051	July 2001	Saylor et al.	379/88.17
6269393	July 2001	Yost et al.	709/201
6279033	August 2001	Selvarajan et al.	709/217
6279038	August 2001	Hogan et al.	709/224
6289352	September 2001	Proctor	707/102
6292811	September 2001	Clancey et al.	707/503
6301590	October 2001	Siow et al.	707/500
6304850	October 2001	Keller et al.	705/5
6314402	November 2001	Monaco et al.	704/275
6314533	November 2001	Novik et al.	714/39
6317750	November 2001	Tortolani et al.	707/103R
6336124	January 2002	Alam et al.	707/523

6385583	May 2002	Ladd et al.	704/270
6404858	June 2002	Farris et al.	379/88.02
2002/0065752	May 2002	Lewis	705/35

FOREIGN PATENT DOCUMENTS

FOREIGN-PAT-NO	PUBN-DATE	COUNTRY	US-CL
0878948	November 1998	EP	
0889627	January 1999	EP	

OTHER PUBLICATIONS

Traffic Station Corporate Information, http://www.trafficstation.com/home/corporate.html, Jan. 10, 2001.
Traffic Station Extends Service to Six New Markets in North America, Reaching its Goal of 20 Markets by the New Millennium, Business Editors/Multimedia & Transportation Writers, Los Angeles, Dec. 23, 1999.
MSNBC on the Internet Launches New Traffic Section; MSNBC.com and Sidewalk.com Team with TrafficStation for Production of Comprehensive Site for Drivers, Financial News, Redmond, Wash, Apr. 15, 1998.
Adali et al., "Query Caching and Optimization In Distributed Mediator Systems", SIGMOD '96, Jun. 1996, Montreal, Canada, pp. 137-148.
Alur et al., "Directory-Driven Information Delivery", DataBase Associates Int'l, Jul. 1996, printed from http://web.archive.org on Jan. 7, 2002, 12 pages.
Chawathe et al., "Representing and Querying Changes in Semistructured Data", Proceedings of the 14.sup.th International Conference on Data Engineering, IEEE, Feb. 23-27, 1990, pp. 4-13.
Codd et al., "Providing OLAP (On-line Analytical Processing) to User-Analysts; an IT Mandate", San Jose, California, Codd and Date, 1993, 1 page.
Flohr, "Using Web-Based Applications to Perform On-Line Analytical Processing Builds on the Strengths of Both Technologies", OLAP by Web, Sep. 1997, 8 pages.
Gesmann et al., "A Remote Cooperation System Supporting Interoperability In Heterogeneous Environments", Proceedings of the Third International Workshop on Research Issued In Data Engineering, IEEE, Apr. 19-20, 1993, pp. 152-160.
Hackathorn, "Solutions to Overworked Networks and Unruly Software Distribution are Just Part of P&S.", Publish or Perish, Sep. 1997, 21 pages.
Liscano et al., "Integrating Multi-Modal Messages across Heterogeneous Networks", IEEE, 1997, pp. 45-53, Abstract.
Liu et al., "Differential Evaluation of Continual Querles", Proceedings of the 16.sup.th International Conference on Distributed Computing Systems, IEEE, May 27-30, 1996, pp. 456-465.
Newing, "Relational Databases Are Not Suitable for Management Information Systems; And That's Official", Management Accounting, London, vol. 72, No. 8, Sep. 1994, 4 pages.
Raden, "Teraforming the Data Warehouse", Archer Decision Sciences, printed from http://www.archer-decision.com on Jan. 16, 2002, 13 pages.
Schreier et al., Alert: An Architecture for Transforming a Passive DBMS into an Active DBMS, Proceedings of the 17.sup.th International Conference on Very Large Data Bases, Sep. 3-6, 1991, pp. 469-478.
Schultz, "ADEPT -The Advanced Database Environment for Planning and Tracking", Bell Labs Technical Journal, Jul.-Sep. 1998, pp. 3-9.
Spofford, "Attack of the Killer APIs", Intelligent Enterprise's Database Online Programming and Design, printed from http://www.dbpd.com on Dec. 21, 2001, 10 pages.

Stonebraker et al., "On Rules, Procedures, Caching and Views In Data Base Systems", Proceedings of the 1990 ACM SIGMOD International Conference on Management of Data, May 23-26, 1990, pp. 281-290.
Terry et al., "Continuous Queries over Append-Only Databases", Proceedings of the 1992 ACM SIGMOD International Conference on Management of Data, Jun. 2-5, 1992, pp. 321-330.
Search Results from Internet Archive Wayback Machine, searched for http://www.infoadvan.com, printed from http://web.archive.org on Dec. 19, 2001, 40

pages.
Search Results from Internet Archive Wayback Machine, searched for http://www.platinum.com, printed from http://web.archive.org on Dec. 21, 2001, 17 pages.
ROLAP Case Studies, 30 pages.
"Fast and Flexible Access to Databases", Byte, Aug. 1997, pp. 53-54.
"Distributed Application Development with PowerBuilder 6.sub.- 0", Manning Publications Co., printed from http://www.manning.com on Jan. 15, 2002, 12 pages.
"PowerBuilder 6.0 Questions & Answers", Manning Publications Co., printed from http://www.manning.com on Jan. 15, 2002, 13 pages.
"PowerBuilder 6.0 Questions & Answers", Manning Publications Co., printed from http://www.manning.com on Jan. 17, 2002, 2 pages.
Cheshire, "Product News -A See of Opportunity", Intelligent Enterprise's Database Online Programming and Design, printed from http://www.dbpd.com on Jan. 17, 2002, 8 pages.
"Information Advantage -Business Intelligence", "Live Information Repository...", printed from http://www.infoadvan.com, on Dec. 19, 2001, 5 pages.
"Objective Data Inc. -Computer Software Consultants", Client List, printed from http://objectivedata.com/clients.htm on Jan. 15, 2002, 5 pages.
"Online Analytical Processing", printed from http://searchdatabase.techtarget.com on Jan. 18, 2002, 3 pages.
"Seagate Crystal Reports 8", printed from http://www.crystaluser.com on Dec. 28, 2001, 6 pages.
"Andyne Delivers Personal OLAP with PaBLO 4.0", Press Release, Mar. 31, 1997, Andyne Computing Limited, 5 pages.
"Andyne Announces Support for Microsoft's OLE DB for OLAP", Press Release, Sep. 10, 1997, Andyne Computing Limited, 4 pages.
"Andyne QMO -Manage Data Access", Andyne Computing, printed from http://web.archive.org on Jan. 3, 2002, 5 pages.
"The Andyne Vision -On the Road to the Integrated Solution", Andyne Computing, printed from http://web.archive.org on Jan. 3, 2002, 11 pages.
"Visual Information Access for Multidimensional Companies...", Andyne Corporate Profile, 2 pages.
"MicroStrategy Announces DSS Web 5.0; DSS Web Introduces the Web-Cast of Decision Support", MicroStrategy, Jan. 5, 1998, printed Dec. 10, 2001, 2 pages.
"MicroStrategy Introduces DSS Web Standard Edition; Web Interface Provides powerful, Easy-to-Use DSS Tool for Mainstream End-User Market", MicroStrategy, Apr. 27, 1998, printed Dec. 10, 2001, 2 pages.
"MicroStrategy Advantages; Proven Multi-TIer Architecture", printed from http://web.archive.org., 4 pages.
"MicroStrategy `Consumerizes` the Data Warehouse with Its New 4.0 Product Line", Press Release, Jun. 24, 1996, MicroStrategy, printed from http://web.archive.org on Dec. 8, 2001, 7 pages.
"MicroStrategy Announces DSS Server 3.0", Press Release, Aug. 8, 1995, MicroStrategy, printed from http://web.archive.org on Dec. 8, 2001, 5 pages.
"MicroStrategy Announces True Relational OLAP Product Line", Press Release, Aug. 8, 1995, MicroStrategy, printed from http://web.archive.org on Dec. 8, 2001, 5 pages.
"DSS Administrator Features Overview", MicroStrategy, No. 05090297, 2 pages.
"DSS Agent Features Overview", MicroStrategy, No. 05100696, 2 pages.
"DSS Server Features Overview", MicroStrategy, No. 05140896, 2 pages.
"Relational OLAP Interface", DSS Agent, MicroStrategy, 22 pages and 20 pages.
"Relational OLAP Interface for the Web", MicroStrategy DSS Web Brochure, 4 pages.
"Data Warehouse and DSS Management Tools", DSS Administrator, MicroStrategy, 17 pages and 16 pages.
"OLE API for Custom Application Development", DSS Objects, MicroStrategy, 4 pages and 4 pages.
"Arbor Software OLAP Products", Brochure, Arbor Software, 12 pages.
"InfoTrac OneFile", Database Programming & Design, vol. 11, No. 7, Jul. 1998, 12 pages.
"Andyne GQL Version 3.3.2 Available Jul. 17.sup.th ; Featuring Multi-Pass Reporting, Time Governors and Scripting", Business Wire, Jun. 26, 1995, Andyne Computing Limited, 4 pages.
"MicroStrategy Announces DSS Server 3.0; Three-Tier Architecture Results in Exceptional Performance and Scalability for DSS Applications", Business Wire, Aug. 8, 1995, MicroStrategy, 3 pages.

"Information Advantage Ships DecisionSuite 3.0 Business Analysis Applications for Data Warehouses", Business Wire, Nov. 9, 1995, 3 pages.
"Information Advantage Announces WebOLAP; First Structured Content analysis Server for the World Wide Web", Business Wire, Feb. 5, 1996, 3 pages.
"Andyne Delivers Second Stage of the Andyne Integrated Solution", Canada NewsWire, May 13, 1996, 3 pages.
"Andyne Computing Ltd is Shipping Version 3.3.2 of its GQL Decision Support System", CommunicationsWeek, No. 566, Jul. 17, 1995, p. 16.
"Andyne Computing Introduces New Query Management Option as Companion Product to Andyne's GQL Product", CommunicationsWeek, No. 592, Jan. 15, 1996, p. 16.
"Andyne Hopes to Benefit from Current Data Warehousing Hype with GQL Query Language", Computergram International, No. 2796, Nov. 22, 1995, 1 page.
"Andyne's GQL Makes it Easier -New Version of Reporting, Analysis Tool Unveiled", Computer Reseller News, No. 685, 1996, p. 79.
"The Right Tools", Computer Weekly, Aug. 29, 1996, 4 pages.
"4 OLAP Tools; The Common Thread is that OLAP Tools Drain Too Much Time and Energy Before You Get What You Need", Computerworld, Dec. 2, 1996, 4 pages/.
"GQL", Data Management Review (DM Review), vol. 6, No. 5, May 1996, p. 47.
"DB2 Today Newsletter", Jun. 1999, 2 pages.
"GQL 3.2", DBMS, vol. 8, No. 1, Jan. 1995, 2 pages.
"Everything's Coming Up Warehouse", DBMS, Oct. 1, 1995, 3 pages.
"Query, Reporting, and Analysis Tools", DBMS, vol. 9, No. 6, Jun. 15, 1996, 14 pages.
Brooks, "MCI Leverages Data Warehouse Technology to Strengthen its Marketing Campaigns", DBMS, Dec. 1996, 7 pages.
Dobson, "Data Binding in Dynamic HTML", DMBS, Mar. 1998, 12 pages.
Dodd, "Native is as Native Does", HP Professional, vol. 12, No. 12, Feb. 1998, 1 page.
"Banking's New Payoff; Speed", InformationWeek, Jan. 17, 1994, 3 pages.
"Nailing Down More Query Tools", InformationWeek, vol. 523, Apr. 17, 1995, 7 pages.
Raden, "Data, Data Everywhere", Information Week, Oct. 30, 1995, pp. 60-65.
"Back-to-Back Upgrades -Vendors Introduce Reporting, Query Tools", InformationWeek, No. 598, Sep. 23, 1996, 1 page.
"Desktop OLAP Tools -If the Tool Fits, Use It -Online Analytical Processing Tools Offer Ease of Use for Data Retrieval and Analysis with Minimal User Training", InformationWeek, No. 605, Nov. 11, 1996, 3 pages.
"Pilot Gets Serious About OLAP", Information Week, Jul. 20, 1998, pp. 55-59.
"Oracle Announces Next Generation Oracle Express Server 6.0", M2 Presswire, Aug. 7, 1996, 5 pages.
"Andyne Updates GQL", Newsbytes, Jul. 12, 1994, 1 page.
"Andyne Computing Has Released Version 3.2.2 of its GQL Query Software for Macintosh, Windows and Unix Platforms", Newsbytes News Network, Jul. 12, 1994, 4 pages.
"Data Access is Key to Warehousing Success", Open Systems Today, Oct. 3, 1994, 2 pages.
Phillips, "Crystal Eyes OLAP Engine", PC Week, vol. 13, No. 4, Jan. 29, 1996, 3 pages.
Dyck, "New Report Writer Spruces Up GQL", PC Week, vol. 14, No. 3, Jan. 20, 1997, 1 page.
"New Decision Suite 3.0 From Information Advantage Raises the Bar for Enterprise Decision Support", Newswire, Aug. 8, 1995, 3 pages.
"Andyne's Intranet Strategy Brings DSS to the Web; Company Aims to Dramatically Broaden Scope of Reporting, Online Analysis", PR Newswire, Sep. 18, 1996, 11 pages.
"NCR Adds OLAP Services to Extend and Expand Decision Support Capabilities of Teradata Database", PR Newswire, May 28, 1998, 3 pages.
"DecisionSuite 3.5", SoftBase, Sep. 12, 1996, 2 pages.
"IBM Acquires ITI's KnowledgeX Technology to Enhance Business Intelligence Solutions", Software News, Jul. 23, 1998, 1 page.
"Microstrategy Talks Crystal Balls", Software Futures, Apr. 1, 1997, 4 pages.
"Document Agent Administrator's Guide", Revision 3, BusinessObjects, Version 4.0, pp. 1-29.
"Document Agent Server Administrator's Guide", Revision 4, BusinessObjects, Version 4.1, pp. 1-33.
"Getting Started with Reports", Revision 2, BusinessObjects, Version 4.0, pp. 1-53.
"Getting Started with Reports", Revision 3, BusinessObjects, Version 4.1, pp. 1-53.

"User's Guide", Revision 3, BusinessObjects, Version 4.0, pp. 1-251.
"User's Guide", Revision 4, BusinessObjects, Version 4.1, pp. 1-287.
Advertisement for Progressive Telecommunications Corporation's OPUS (undated).
KnowledgeX Workgroup Edition Publication (undated).
Relational OLAP Server, MicroStrategy; DSS Server Brochure, 1996.
Relational OLAP Interface for the Web, 1996.
"Andyne Introduces Greater Flexibility for Database Queries; New Query Management Option Provides Enhanced Management for Enterprise-Wide Queries,"Business Wire, Jan. 3, 1996. Available from the Dow Jones Interactive Web Site http://Ptg.djnr.com.
Catalano, Carla, "OLAP, Scheduling, Tuning for DBMSs,"Computer World, Apr. 1, 1996. Available in Dow Jones Interactive, http://www.dowjonesinteractive.com.
Andyne's Intranet Strategy Brings DSS to the Web; Company Aims to Dramatically Broaden Scope of Reporting, Online Analysis, PR Newswire, Sep. 18, 1996. Available from the Dow Jones Interactive Web Site http://Ptg.djnr.com.
Sachs et al., "A First Step on the Path to Automated Flight Reservations,"Interactive Voice Technology for Telecommunications, 1996.
Bennacef et al., "Dialog in the Railtel Telephone-Based System,"Spoken Language, 1996.
Brooks, Peter, "Targeting Customer,"DBMS, v9, n13, Dec. 1996, pp. 54-58.
"Sterling Software Announces Alliance with Thinking Machines,"Business Wire, Dec. 16, 1996. Available from the Dow Jones Interactive Web Site http://Ptg.djnr.com.
Gupta et al., "Index Selection for OLAP,"Proceedings of the 13.sup.th International Conference on Data Engineering, .COPYRGT. 1997.
Ho et al., "Partial-Sum Queries in OLAP Data Cubes Using Covering Codes," PODS'97 Tuscon, AZ USA.
Kilmartin et al., "Real Time Stock Price Distribution Utilising the GSM Short Messaging Service," 1997 IEEE International Conference on Personal Wireless, 1997, Abstract.
Data Warehousing: Data Access and Delivery, Infobase Technology Database, 1997, http://www.dbaint.com/oldinfobase/dwaccdel.html.
Gardner, Dana Marie, "Cashing in With Data Warehouses and the Web," Data Based Advisor, v15, n2, Feb. 1997, pp. 60-63.
Intrepid Systems Announces General Availability of DecisionMaster 4.1; Retailing's Premier Decision Support Software Enhancements Automate Information Delivery, Business Wire, May 27, 1997. Available in Dow Jones Interactive, http://www.dowjonesinteractive.com.
Blue Isle Software InTouch/2000 Product Overview, Blue Isle Software, Inc. (archived Jul. 7, 1997), http://www.blueisle.com. Available in Internet Archive Waybackmachine http://www.archive.org.
"Blue Isle Software Teams with Arbor Software to Deliver Automated Systems Management Capabilities for Arbor Essbase," Business Wire, Oct. 29, 1997. Available in LEXIS, Nexis Library, ALLNWS file.
"Early Warning: Compulogic's Dynamic Query Messenger," Software Futures, Nov. 1, 1997. Available in LEXIS, Nexis Library, ALLNWS file.
Kilmartin et al., "Development of an Interactive Voice Response System for a GSM SMS Based Share Price Server," DSP '97 Conference Proceedings, Dec. 1997, Abstract.
Avnur et al., "Control: Continuous Output and Navigation Technology with Refinement On-Line," .COPYRGT. 1998.
Liang et al., "Computing Multidimensional Aggregates in Parallel," 1998 International Conference on Parallel and Distributed Systems, IEEE.
Friel et al., An Automated Stock Price Delivery System Based on the GSM Short Message Service, ICC'98 1998 IEEE International Conference on Communications, 1998, Abstract.
Microstrategy Products and Services, 1998.
Personalized Information Broadcast Server, 1998.
"Information Advantage Wins Product of the Year Award for Knowledge Management," Business Wire, Mar. 4, 1998. Available in LEXIS, Nexis Library, ALLNWS file.
Emigh, Jacqueline, "Information Builders, Inc. Launches WebFocus Suit," Newbytes, Mar. 10, 1998. Available in Northern Light, http://www.northernlight.com, Doc. ID BS19980311010000172.
Microstrategy: DSS Broadcaster -The Industry's First Information Broadcast Server, M2 Presswire, Mar. 20, 1998. Available in Dow Jones Interactive http://www.djinteractive.com.
Microstrategy: DSS Broadcaster -The Industry's First Information Broadcast Server, Mar. 23, 1998.

http://strategy.com/newsandevent/New/PressRelease/1998/broadcaster.htm.
Microstrategy Introduces DSS Broadcaster -The Industry's First Information Broadcast Server, Mar. 23, 1998.
http://www.strategy.com/newsandevents/News/PressReleases/1998/broadcaster. htm.
Prospectus -4,000,000 Shares Microstrategy Class A Common Stock, Jun. 11, 1998.
"System for Telephone Access to Internet Applications -Uses Dial Tones and/or Voice with Interactive Voice Response Unit to Pass Request to Processor that Converts Requests to Communication Protocol Command Set," IBM, Patent No. RD 98412088. Jul. 20, 1998, Abstract.
Relational OLAP Interface, Programmer's Reference and SDK Guide, Version 5.0, Aug. 1998.
Data Warehouse Dossier, Fall 1998.
"Microstrategy Announces Enhanced Versions of DSS Web and DSS Server," Oct. 26, 1998, http://www.strategy.com/NewsandEvents/news/pressreleases/1998/server5.5. htm.
System Guide DSS Web Version 5.5, Feb. 1999.
Developer Guide DSS Web Version 5.5, Feb. 1999.
Media Output Book, v2.0, Feb. 16, 1999.
Computer Telephony, from www.telecomlibrary.com-Sep. 9, 1999.
Frequently Asked Questions About DSS Web, printed Feb. 23, 1999, http://www.strategy.com/products/Web/faq.htm.
Newswire, "Net Phones to Outsell Laptops by 2002", Dec. 2, 1998, Dialog File #03635692.
RCR Radio Communications Report, "Comverse Developing Unified Applications for GSM Smartphone Marketplace", Feb. 23, 1998, vol. 17, No. 8, p. 106, Dialog File #02078693.
America's Network, "Wireless Web Browsing: How Long Will Deployment Take? (There Will be 22 Mil Devices Other than PCs Accessing the Internet by 2000)", Dec. 15, 1996, vol. 100, No. 24, p. 30, Dialog File #01708089.

ART-UNIT: 2645

PRIMARY-EXAMINER: Tsang; Fan

ASSISTANT-EXAMINER: Escalante; Ovidio

ATTY-AGENT-FIRM: Mintz Levin Cohn Ferris Glovsky & Popeo PC

ABSTRACT:

A method and system for accomplishing real-time drilling in conjunction with interactive, real-time, voice transmission of information to a user is disclosed. A voice-based communication between a user and a first system is established and a report is transmitted to the user. The report might comprise information and at least one request for user input based on said information. In response to the report, the user can request that additional information be drawn from the report via drilling. The requested information is extracted from the original report in real-time.

19 Claims, 15 Drawing figures

☐ 7. Document ID: US 6513009 B1

L15: Entry 7 of 12 File: USPT Jan 28, 2003

US-PAT-NO: 6513009
DOCUMENT-IDENTIFIER: US 6513009 B1

TITLE: Scalable low resource dialog manager

DATE-ISSUED: January 28, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Comerford; Liam David	Carmel	NY		
Fernhout; Paul Derek	Chappaqua	NY		
Frank; David Carl	Ossining	NY		

ASSIGNEE-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
International Business Machines Corporation	Armonk	NY			02

APPL-NO: 09/ 460961 [PALM]
DATE FILED: December 14, 1999

PARENT-CASE:
CROSS REFERENCE TO RELATED APPLICATIONS The present invention is related to U.S. patent applications Ser. No. 09/460,077 entitled "Personal Speech Assistant", Ser. No. 09/460,913 entitled "Methods and Apparatus for Contingent Transfer and Execution of Spoken Language Interfaces", and Ser. No. 09/460,921 entitled "Methods and Apparatus for Synchronizing Voice and Text Data in Accordance with Computing Devices", all commonly assigned to International Business Machines Corporation, Armonk, N.Y. and filed concurrently herewith, the disclosures of which are incorporated herein by reference.

INT-CL: [07] G10 L 21/00

US-CL-ISSUED: 704/270
US-CL-CURRENT: 704/270

FIELD-OF-SEARCH: 704/270.1, 704/270

PRIOR-ART-DISCLOSED:

U.S. PATENT DOCUMENTS

PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
5488569	January 1996	Kaplan et al.	379/201.03
5748974	May 1998	Johnson	704/9
5850629	December 1998	Holm et al.	704/260
5870709	February 1999	Bernstein	434/156
5999904	December 1999	Brown et al.	704/200
6044347	March 2000	Abella et al.	704/272
6061646	May 2000	Martino et al.	379/88.06

ART-UNIT: 2645

PRIMARY-EXAMINER: Dorvil; Richemond

ASSISTANT-EXAMINER: Opsasnick; Michael N.

ATTY-AGENT-FIRM: Otterstedt; Paul J. Ryan, Mason & Lewis, LLP

ABSTRACT:

A spoken language interface between a user and at least one application or system

includes a dialog manager operatively coupled to the application or system, an audio input system, an audio output system, a speech decoding engine and a speech synthesizing engine; and at least one user interface data set operatively coupled to the dialog manager, the user interface data set representing spoken language interface elements and data recognizable by the application. The dialog manager enables connection between the input audio system and the speech decoding engine such that a spoken utterance provided by the user is provided from the input audio system to the speech decoding engine. The speech decoding engine decodes the spoken utterance to generate a decoded output which is returned to the dialog manager. The dialog manager uses the decoded output to search the user interface data set for a corresponding spoken language interface element and data which is returned to the dialog manager when found, and provides the spoken language interface element associated data to the application for processing in accordance therewith. The application, on processing that element, provides a reference to an interface element to be spoken. The dialog manager enables connection between the audio output system and the speech synthesizing engine such that the speech synthesizing engine which, accepting data from that element, generates a synthesized output that expresses that element, the audio output system audibly presenting the synthesized output to the user.

44 Claims, 15 Drawing figures

☐ 8. Document ID: US 6510411 B1

L15: Entry 8 of 12 File: USPT Jan 21, 2003

US-PAT-NO: 6510411
DOCUMENT-IDENTIFIER: US 6510411 B1

TITLE: Task oriented dialog model and manager

DATE-ISSUED: January 21, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Norton; Lewis M.	Paoli	PA		
Dahl; Deborah A.	Plymouth Meeting	PA		
Linebarger; Marcia C.	Elkins Park	PA		

ASSIGNEE-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
Unisys Corporation	Blue Bell	PA			02

APPL-NO: 09/ 430315 [PALM]
DATE FILED: October 29, 1999

INT-CL: [07] G10 L 15/04

US-CL-ISSUED: 704/254; 704/256, 704/251, 704/260, 704/257, 704/275, 379/67, 379/76, 379/88.01, 379/88.03
US-CL-CURRENT: 704/254; 379/76, 379/88.01, 379/88.03, 704/251, 704/256, 704/257, 704/260, 704/275

FIELD-OF-SEARCH: 704/250, 704/254, 704/251, 704/256, 704/257, 704/275, 704/270, 704/260, 379/67, 379/76, 379/88.01, 379/88.03, 706/61

PRIOR-ART-DISCLOSED:

U.S. PATENT DOCUMENTS

PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
5694558	December 1997	Sparks et al.	395/326
5748974	May 1998	Johnson	395/759
5794193	August 1998	Gorin	704/250
5812977	September 1998	Douglas	704/275
5860063	January 1999	Gorin et al.	704/257
6173261	January 2001	Arai et al.	704/257
6192110	February 2001	Abella et al.	379/88.01
6246981	June 2001	Papineni et al.	704/235
6246986	June 2001	Ammicht et al.	704/270
6269336	July 2001	Ladd et al.	704/270
6321198	November 2001	Hank et al.	704/270

OTHER PUBLICATIONS

Riccardi et al., ("A spoken language system for automated call routing", IEEE International Conference on ICASSP'97--Acoustics, Speech, and Signal Processing, vol. 2, pp. 1143-1146, Apr. 1997).*
Kamm et al., ("Design and evaluation of spoken dialog systems", 1997 IEEE Workshop on Automatic Speech Recognition and Understanding, pp. 11-18, Dec., 1997).*
Alicia Abella and Allen L. Gorin; Construct Algebra: Analytical Dialog Management from the 37.sup.th Annual Meeting of the Association for Computational Linguistics; Jun. 20-26, 1999.

ART-UNIT: 2654

PRIMARY-EXAMINER: Chawan; Vijay

ATTY-AGENT-FIRM: Washburn; Woodcock Rode; Lise A. Starr; Mark T.

ABSTRACT:

A simplification of the process of developing call or dialog flows for use in an Interactive Voice Response system is provided. Three principal aspects of the invention include a task-oriented dialog model (or task model), development tool and a Dialog Manager. The task model is a framework for describing the application-specific information needed to perform the task. The development tool is an object that interprets a user specified task model and outputs information for a spoken dialog system to perform according to the specified task model. The Dialog Manager is a runtime system that uses output from the development tool in carrying out interactive dialogs to perform the task specified according to the task model. The Dialog Manager conducts the dialog using the task model and its built-in knowledge of dialog management. Thus, generic knowledge of how to conduct a dialog is separated from the specific information to be collected in a particular application. It is only necessary for the developer to provide the specific information about the structure of a task, leaving the specifics of dialog management to the Dialog Manager. Computer-readable media are included having stored thereon computer-executable instructions for performing these methods such as specification of the top level task and performance of a dialog sequence for completing the top level task.

17 Claims, 13 Drawing figures

☐ 9. Document ID: US 6504914 B1

L15: Entry 9 of 12 File: USPT Jan 7, 2003

US-PAT-NO: 6504914
DOCUMENT-IDENTIFIER: US 6504914 B1

TITLE: Method for dialog control of voice-operated information and call information services incorporating computer-supported telephony

DATE-ISSUED: January 7, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Brademann; Lutz	Berlin			DE
Mueller; Christel	Schulzendorf			DE
Mundin; Thomas	Neuenhagen			DE
Ziem; Thomas	Zepernick			DE
Wetzel; Romeo Peter	Stuttgart			DE
Parus; Hardy	Berlin			DE

ASSIGNEE-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
Deutsche Telekom AG	Bonn			DE	03

APPL-NO: 09/ 446161 [PALM]
DATE FILED: December 16, 1999

FOREIGN-APPL-PRIORITY-DATA:

COUNTRY	APPL-NO	APPL-DATE
DE	197 25 421	June 16, 1997

PCT-DATA:

APPL-NO	DATE-FILED	PUB-NO	PUB-DATE	371-DATE	102(E)-DATE
PCT/EP98/03606	June 16, 1998	WO98/58487	Dec 23, 1998		

INT-CL: [07] H04 M 1/64, H04 M 3/42, H04 M 3/00

US-CL-ISSUED: 379/88.16; 379/67.1, 379/76, 379/88.01, 379/88.04, 379/88.17, 379/88.18, 379/201.01, 379/265.09, 379/266.07
US-CL-CURRENT: 379/88.16; 379/201.01, 379/265.09, 379/266.07, 379/67.1, 379/76, 379/88.01, 379/88.04, 379/88.17, 379/88.18

FIELD-OF-SEARCH: 379/67.1, 379/76, 379/80, 379/88.01, 379/88.04, 379/88.13, 379/88.16, 379/88.17, 379/88.18, 379/201.01, 379/218.01, 379/265.01, 379/265.09

PRIOR-ART-DISCLOSED:

U.S. PATENT DOCUMENTS

PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
5181237	January 1993	Dowden et al.	379/88
5530852	June 1996	Meske, Jr. et al.	395/600
5652789	July 1997	Miner et al.	
5915010	June 1999	McCalmont	379/212
6064666	May 2000	Wilner et al.	370/352

OTHER PUBLICATIONS

Newton's Telecom Dictionary, 16.sup.th Updated Edition, p. 739.*
* Lawrence R. Rabiner., "Speech-Processing Applications: The Goals for 2001," AT&T Technology.
* Christel Muller et al., "Dialogue Design Principles--Key for Usability of Voice Processing.".

ART-UNIT: 2645

PRIMARY-EXAMINER: Hoosain; Allan

ATTY-AGENT-FIRM: Kenyon & Kenyon

ABSTRACT:

A method provides customer with simple and flexible dialog control and faster access to the desired information. In response to a customer call, a control program for dialog control created with the aid of a graphical editor as a flow chart is started, once access authorization is checked. All of the computer-supported telephony (CTI) information input modules and information output modules provided within the framework of the dialog control service in question, which are subject to continuous monitoring, are simultaneously made available in parallel to the customer via a control module for controlling the resources. The customer can actively intervene in the dialog already during the welcome via the information input modules allocated to him. The dialog commences again at the place designated by the customer. The method is suitable for at least information, news and connection services which are based on very significant parallelism and which are configured for mass telephony.

2 Claims, 3 Drawing figures

☐ 10. Document ID: US 6263051 B1

L15: Entry 10 of 12 File: USPT Jul 17, 2001

US-PAT-NO: 6263051
DOCUMENT-IDENTIFIER: US 6263051 B1

TITLE: System and method for voice service bureau

DATE-ISSUED: July 17, 2001

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Saylor; Michael J.	Vienna	VA		
Zirngibl; Michael	Washington	DC		
Patnaik; Anurag	Arlington	VA		
Tsai; Sean S.	Vienna	VA		
Eberle; Hannes	Arlington	VA		
Mosle; Wolf	McLean	VA		
Santa Ana; Alberto	Falls Church	VA		

ASSIGNEE-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
Microstrategy, Inc.	Vienna	VA			02

APPL-NO: 09/ 454604 [PALM]
DATE FILED: December 7, 1999

PARENT-CASE:
This application claims benefit of Provisional Appln 60/153,222 filed Sep. 13, 1999.

INT-CL: [07] H04 M 1/64

US-CL-ISSUED: 379/88.17; 379/88.22
US-CL-CURRENT: 379/88.17; 379/88.22

FIELD-OF-SEARCH: 379/88.13, 379/88.17, 379/88.22, 379/90.01, 379/93.01, 379/93.03, 379/93.24, 379/100.08, 379/100.14, 379/201, 379/216, 379/355, 379/265, 379/266

PRIOR-ART-DISCLOSED:

U.S. PATENT DOCUMENTS

PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
4757525	July 1988	Matthews et al.	
4868866	September 1989	Williams, Jr.	380/49
5751790	May 1998	Makihata	
5781886	July 1998	Tsujiuchi	
5787151	July 1998	Nakatsu et al.	
5793980	August 1998	Glaser et al.	
5872926	February 1999	Levac et al.	395/200.36
5907598	May 1999	Mandalia et al.	379/100.01
5915001	June 1999	Uppaluru	
5923736	July 1999	Shachar	379/93.17
5943399	August 1999	Bannister et al.	379/88.17
5943410	August 1999	Shaffer et al.	379/213
5953392	September 1999	Rhie et al.	379/88.13
6026087	February 2000	Mirashrafi et al.	379/88.17 X
6031836	February 2000	Haserodt	379/93.01 X

ART-UNIT: 265

PRIMARY-EXAMINER: Weaver; Scott L.

ATTY-AGENT-FIRM: Hunton and Williams

ABSTRACT:

A centralized voice service bureau is provided. The voice service bureau accepts and authenticates requests to place automated telephone calls, for example, interactive voice broadcasts. The requests are sent through the Internet or other computer network and contain structure and content sufficient to drive a text-to-speech engine. The call requests are queued and processed by a call server that establishes a connection with a user and generates speech from the content of the call request.

56 Claims, 14 Drawing figures

☐ 11. Document ID: US 6246981 B1

L15: Entry 11 of 12 File: USPT Jun 12, 2001

US-PAT-NO: 6246981
DOCUMENT-IDENTIFIER: US 6246981 B1

TITLE: Natural language task-oriented dialog manager and method

DATE-ISSUED: June 12, 2001

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Papineni; Kishore A.	Yonkers	NY		
Roukos; Salim	Scarsdale	NY		
Ward; Robert T.	Croton-on-Hudson	NY		

ASSIGNEE-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
International Business Machines Corporation	Armonk	NY			02

APPL-NO: 09/ 200098 [PALM]
DATE FILED: November 25, 1998

INT-CL: [07] G10 L 15/26, G10 L 15/22

US-CL-ISSUED: 704/235; 704/275
US-CL-CURRENT: 704/235; 704/275

FIELD-OF-SEARCH: 704/275, 704/270, 704/235, 706/61

PRIOR-ART-DISCLOSED:

U.S. PATENT DOCUMENTS

PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
5168548	December 1992	Kaufman et al.	704/200
5231670	July 1993	Goldhor et al.	704/275
5577165	November 1996	Takebayashi et al.	
5694558	December 1997	Sparks et al.	
5748974	May 1998	Johnson	
5970448	October 1999	Goldhor et al.	704/235
5999904	December 1999	Brown et al.	
6003020	December 1999	Hazlehurst et al.	
6044347	May 2000	Abella et al.	
6073102	June 2000	Block	
6094635	July 2000	Scholz et al.	
6125347	September 2000	Cote et al.	704/275

FOREIGN PATENT DOCUMENTS

FOREIGN-PAT-NO	PUBN-DATE	COUNTRY	US-CL
0123456 A2	January 2000	EP	100/100

OTHER PUBLICATIONS

IBM Technical Disclosure NN85057034 "Invoking Inference Engines in an Expert System" May 1985.*
A.L. Gorin et al "How may I help you?" Proc. 3rd Workshop on Interactive Voice Technology, Nov. 1, 1996, pp. 57-60.*
J. Choobineh et al. "An expert database design system based on analysis of forms" IEEE Trans Software Engineering, pp. 242-253 Feb. 1988.*
Bobrow et al., "GUS, A Frame-Driven Dialog System," Artificial Intelligence, vol. 8, pp. 153-173, 1977.
Denecke et al., "Dialogue Strategies Guiding Users to Their Communicative Goals," ISSN, 1018-4074, pp. 1339-1342.
Pieraccini et al., "AMICA: the AT&T Mixed Initiative Conversational Architecture," ISSN, 1018-4074, pp. 1875-1878.
Levin et al., "Using Markov Decision Process for Learning Dialogue Strategies," ICASSP-98, vol. 1, pp. 201-204.
Goddeau et al., "A Form-Based Dialogue Manager for Spoken Language Applications," Proceedings of International Conference on Spoken Language Processing, Oct. 1996, pp. 701-704.
Ratnaparkhi, "A Linear Observed Time Statistical Parser Based on Maximum Entropy Models," Proceedings of the Second Conference on Empirical Methods in Natural Language Processing, Aug. 1997.

ART-UNIT: 261

PRIMARY-EXAMINER: Smits; Talivaldis I.

ATTY-AGENT-FIRM: F. Chau & Associates, LLP

ABSTRACT:

A system for conversant interaction includes a recognizer for receiving and processing input information and outputting a recognized representation of the input information. A dialog manager is coupled to the recognizer for receiving the recognized representation of the input information, the dialog manager having task-oriented forms for associating user input information therewith, the dialog manager being capable of selecting an applicable form from the task-oriented forms responsive to the input information by scoring the forms relative to each other. A synthesizer is employed for converting a response generated by the dialog manager to output the response. A program storage device and method are also provided.

36 Claims, 6 Drawing figures

☐ 12. Document ID: US 6091835 A

L15: Entry 12 of 12 File: USPT Jul 18, 2000

US-PAT-NO: 6091835
DOCUMENT-IDENTIFIER: US 6091835 A

TITLE: Method and system for transcribing electronic affirmations

DATE-ISSUED: July 18, 2000

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Smithies; Christopher P. K.	Corfe Mullen			GB
Newman; Jeremy M.	Frome, Somerset			GB
Wright; Benjamin	Dallas	TX		

ASSIGNEE-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
PenOp Limited	Somerset			GB	03

APPL-NO: 09/ 024835 [PALM]
DATE FILED: February 17, 1998

PARENT-CASE:
RELATED APPLICATIONS This application is a continuation-in-part of U.S. patent application Ser. No. 08/859,626, filed May 20, 1997 now U.S. Pat. No. 5,818,955, which is a continuation of U.S. application Ser. No. 08/644,084, filed May 9, 1996 (now issued as U.S. Pat. No. 5,544,255) which is a continuation of U.S. application Ser. No. 08/298,991, filed Aug. 31, 1994 (now issued as U.S. Pat. No. 5,647,017).

INT-CL: [07] G06 K 9/00

US-CL-ISSUED: 382/115; 382/232, 340/825.34, 380/23
US-CL-CURRENT: 382/115; 340/5.86, 382/232

FIELD-OF-SEARCH: 382/115, 382/116, 382/117, 382/118, 382/119, 382/120, 382/121, 382/122, 382/123, 382/232, 178/18.01, 340/825.3, 340/825.33, 340/825.34, 283/70, 283/75, 380/23

PRIOR-ART-DISCLOSED:

U.S. PATENT DOCUMENTS

PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
3806704	April 1974	Shinal	235/61.7B
4200770	April 1980	Hellman et al.	178/22
4202626	May 1980	Mayer, Jr. et al.	355/52
4323729	April 1982	Westermayer	178/22.01
4405829	September 1983	Rivest et al.	178/22.1
4495644	January 1985	Parks et al.	382/3
4625076	November 1986	Okamoto et al.	178/22.11
4656474	April 1987	Mollier et al.	380/23
4729128	March 1988	Grimes et al.	382/58
4731575	March 1988	Sloan	324/113
4868877	September 1989	Fischer	380/25
4885777	December 1989	Takaragi et al.	380/30
5005200	April 1991	Fischer	380/30
5038392	August 1991	Morris et al.	382/61
5054088	October 1991	Gunderson et al.	382/3
5091975	February 1992	Berger et al.	382/56
5097504	March 1992	Camion et al.	380/23
5109426	April 1992	Parks	382/3
5111512	May 1992	Fan et al.	382/3
5131025	July 1992	Hamasaki	379/95
5195133	March 1993	Kapp et al.	380/9
5199068	March 1993	Cox	380/23
5202930	April 1993	Livshitz et al.	382/3
5222138	June 1993	Balabon et al.	380/23
5226091	July 1993	Howell et al.	382/3
5251265	October 1993	Dohle et al.	382/3
5257320	October 1993	Etherington et al.	382/3
5278905	January 1994	McNair	380/44
5280527	January 1994	Gullman et al.	380/23
5285506	February 1994	Crooks et al.	382/13
5297202	March 1994	Kapp et al.	380/9
5311595	May 1994	Bjerrum	380/25
5321749	June 1994	Virga	380/18
5322978	June 1994	Protheroe et al.	178/18
5323465	June 1994	Avarne	380/23
5339361	August 1994	Schwalm et al.	380/23
5544255	August 1996	Smithies et al.	382/119
5647017	July 1997	Smithies et al.	382/119
5818955	October 1998	Smithies et al.	382/115
5872848	February 1999	Romney et al.	380/25

FOREIGN PATENT DOCUMENTS

FOREIGN-PAT-NO	PUBN-DATE	COUNTRY	US-CL
95/16974	June 1995	WO	

OTHER PUBLICATIONS

Silanis Technology, "ERA Version 1, Electronic Revision Approval Guide to Installing and Using ERA, Version 1", pp. 1-92 (1993).

"Written Approval" article from Computer-Aided Engineering: Computer Applications in Design, Analysis and Manufacturing, Aug. 1993.
B. Paul Cotter and John H. Messing, "Electronic Court Filing In the Pima County Small Claims Court--Technical Parameters, Adopted Solutions, and Some of the Legal Issues Involved", Jurimetrics, Spring 1998, vol. 38, No. 3, pp. 400-404.
Stan Jessen, "Digital Non-Refutable Documents", 1996.
"Pen Op--Pen to Peer Biometric Security For Pen-based Computing", 1991, Peripheral Vision Limited.
Dan Mezick, "Pen Computing Catches On", Oct. 1993, Byte, vol. 18, No. 11, p. 105.
Portia Isaacson, "Electronic Ink Emerges As A Launchpad of the Future--While Few Products Exist, Jot 1.0 Standard Is A Step", Jun. 28, 1993, Computer Reseller News, p. 62.
Ray Duncan, "Processing Ink In A Pen Windows Application; Power Programming Column; Tutorial", vol. II, No. 9, p. 397, May 12, 1992, PC Magazine.
"Document Signing At A Distance . . . Product and Service News", Jul. 1993, vol. 10, No. 7, p. 3, Telecommuting Review: the Gordon Report.
Mitch Betts, CW Staff, "Execs Can Sign Papers By Remote Control; Pen Computing-Based System Allows Addition of Handwritten Notes", Jun. 14, 1993, p. 57, Computerworld.
"Mobile World--Signing Documents Remotely By Pen Computer", Mar. 8, 1993, Newbytes News Network.
Peripheral Vision Ships PenOp: Software For The Handwritten Signature In Pen Computing, Sep. 1, 1993, Business Wire.
"Digital Ink Begins To Flow Onto Tablets . . . The Latest Word", May 11, 1992, vol. 6, No. 9, p. 21, Seybold Report On Desktop Publishing.
Yvonne Lee, "Third-Party Developers Lead As Pen Systems Part Ways", Apr. 20, 1992, InfoWorld, p. 1.
"Sign-On For Pen-Based Computing . . . Product Announcement", Nov. 1993, vol. 11, No. 11, p. 62 Data Based Advisor.
Mary F. Theofanos, John T. Phillips, "Digital Signatures: Signing and Notarizing Electronic Forms", Apr. 1994, vol. 28, No. 2, p. 18, Records Management Quarterly.
William Stallings, "Make It Real; Using Authentication In Network Security", Sep. 1993, vol. 8, No. 9, p. 105, LAN Magazine.
Henry Bortman, "On Beyond E-Mail, Apple's Open Collaboration Environment Operating Systems", Mar. 1992, vol. 8, No. 3, p. 191, MacUser.
John A. Newman, "Electronic Contracts on the Internet",vol. 7, No. 4, p. 48, EDI Forum, Dec. 1994.
Enliven Impulse, http://www.narrative.com, printed May 29, 1998.
Philip A. DesAutels, DSig Activity Statement, http://www.w3.org/DSig/Activity.html, dated Jan. 2, 1998.
"First Virtual Website," http://vtag.com and http://www.firstvirtual.com, printed May 29, 1998.

ART-UNIT: 271

PRIMARY-EXAMINER: Johns; Andrew W.

ATTY-AGENT-FIRM: Kenyon & Kenyon

ABSTRACT:

The invention presents a method and system for recording a detailed record or "transcript" of the acts, events and forensic circumstances related to a party's affirmation of an electronic document, transaction or event. The transcript is recorded in a data object made secure through the use of encryption and a checksum. The system directs a ceremony whereby the party affirming the document, transaction or event is required to undertake a series of steps in order to successfully complete the affirmation and have the affirmation recorded; thus participation in the ceremony must take place before an affirmation will be accepted. The steps of the controlled procedure serve to gather evidence to confirm specifics such as that the affirming party: i) is in fact the identified party; ii) understands that by entering affirming data, e.g. a password, key, biometric sample or

other affirming data he or she is thereby affirming or becoming legally accountable for the undertakings of the document, transaction or event triggered by computer interaction; iii) has adequately reviewed the document, transaction or statement to

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---

1 **Spontaneous dialogue speech recognition using cross-word context constrained word graphs**
Shimizu, T.; Yamamoto, H.; Masataki, H.; Matsunaga, S.; Sagisaka, Y.;
Acoustics, Speech, and Signal Processing, 1996. ICASSP-96. Conference Proce
1996 IEEE International Conference on , Volume: 1 , 7-10 May 1996
Page(s): 145 -148 vol. 1

[Abstract] [PDF Full-Text (340 KB)] **IEEE CNF**

---

2 **Language models beyond word strings**
Noth, E.; Batliner, A.; Niemann, H.; Stemmer, G.; Gallwitz, F.; Spilker, J.;
Automatic Speech Recognition and Understanding, 2001. ASRU '01. IEEE Work
, 9-13 Dec. 2001
Page(s): 167 -176

[Abstract] [PDF Full-Text (654 KB)] **IEEE CNF**

---

3 **Confidence measures for spoken dialogue systems**
San-Segundo, R.; Pellom, B.; Hacioglu, K.; Ward, W.; Pardo, J.M.;
Acoustics, Speech, and Signal Processing, 2001. Proceedings. (ICASSP '01). 2(
International Conference on , Volume: 1 , 7-11 May 2001
Page(s): 393 -396 vol.1

[Abstract] [PDF Full-Text (332 KB)] **IEEE CNF**

---

4 **A concept graph based confidence measure**
Hacioglu, K.; Ward, W.;
Acoustics, Speech, and Signal Processing, 2002. Proceedings. (ICASSP '02). IE

International Conference on , Volume: 1 , 13-17 May 2002
Page(s): I-225 -I-228 vol.1

[Abstract] [PDF Full-Text (335 KB)] **IEEE CNF**

---

5 **ETUDE, a recursive dialog manager with embedded user interface pat**
Pieraccini, R.; Caskey, S.; Dayanidhi, K.; Carpenter, B.; Phillips, M.;
Automatic Speech Recognition and Understanding, 2001. ASRU '01. IEEE Work
, 9-13 Dec. 2001
Page(s): 244 -247

[Abstract] [PDF Full-Text (360 KB)] **IEEE CNF**

---

6 **Syllable-based acoustic-phonetic decoding and wordhypotheses gene in fluently spoken speech**
Hoge, H.; Littel, B.; Marschall, E.; Schmidbauer, O.; Sommer, R.;
Acoustics, Speech, and Signal Processing, IEEE International Conference on IC.
'86. , Volume: 11 , Apr 1986
Page(s): 1561 -1564

[Abstract] [PDF Full-Text (144 KB)] **IEEE CNF**

---

7 **A dynamic semantic model for re-scoring recognition hypotheses**
Wai, C.; Pieraccini, R.; Meng, H.M.;
Acoustics, Speech, and Signal Processing, 2001. Proceedings. (ICASSP '01). 2(
International Conference on , Volume: 1 , 7-11 May 2001
Page(s): 589 -592 vol.1

[Abstract] [PDF Full-Text (336 KB)] **IEEE CNF**

An end-user oriented approach to design man-machine interfaces for CAD/CAM.

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Jean-Pierre JUNG
Benoît MARTIN

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Ile du Saulcy 57045 Metz cedex

Abstract **This paper describes the design, the specification and the implementation of a new type of graphical system in order to design a dialog architecture : SACADO. This system is an Adaptative System for Computer Aided Design and Development. Thus, it can be considered as :**

- **a CAD/CAM tool.**
- **a basis of CAD/CAM systems development (this point of view is generic; in such a manner, any SACADO systems are constructed with the same methodology and the same tools).**

Features of the system include a hierarchical structure of the dialog with special effects of menus and a capability to allow immediate modification of the dialog specifications.

This original approach, based on different kinds of menus and a single interaction, permits an end-user to design interfaces for CAD/CAM systems without any knowledge in computer science.

Moreover, an overview is included on the technique used in the implementation of the dialog interpreter, which involves an intensive use of syntactic grammars.

I. INTRODUCTION

Recent researches show the increasing importance of the design ([1], [2], [3], [4]) and evaluation ([5], [6]) of high-quality user interfaces. A lot of papers speak about dialog specification languages ([7], [8]) and User Interface Management Systems.

In CAD/CAM systems , the man-machine dialog has an important place too. At first, the dialog permits the description of the interactions between the end-user and the system. Secondly, it can be a basic tool for the description of the system architecture.

In fact, we remark that the execution of the actions in any interactive system is sequential except when the end-user interferes : in this case, the context of the system can change completely.

This work describes the basic elements for a new approach of CAD/CAM systems development : SACADO ([9]). We will not tell about every aspect of SACADO, but we will only emphasize on interactive tools for the construction of systems ("generators") and the Dialog and Architecture Generator (DAG), in particular.

II. SACADO

At first, we must characterise the user of such a system in order to know his needs. We distinguish three kinds of users :

- the end-user (also called "operator").
- the interface programmer.
- the application programmer.

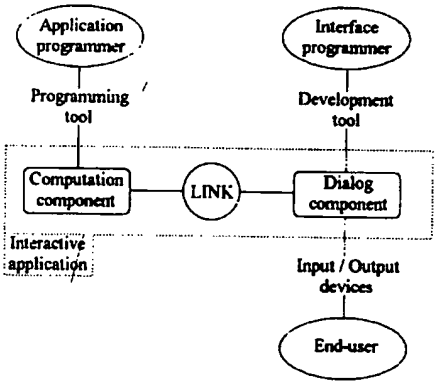


Fig. 1. Users of Interactive Application

The end-user is able to use the interface built by the interface programmer (or participate to design the interface) and the programs developed by the application programmer (we suppose that the interface programmer is an expert in his own domain of application, but not in CAD/CAM technology).

So, in order to bring these users together, we decided to develop SACADO which makes the duality application / dialog easier.

Secondly, we present the architecture model used in SACADO. Such a model gives a generic structure to the interface in order to design an interactive system ([10],

[11], [12]). In particular, it must describe the data exchanges between the end-user and the application, the data transformation steps and the sequence of the module doing these transformations ([6], [13]). The model we chose for SACADO is based on the Seeheim architecture model ([14], [5], [15], [2]) :

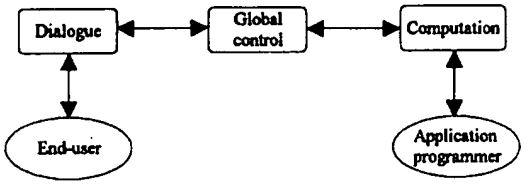


Fig. 2. Seeheim architecture model

The three logic components can be described by :

- computation : it is defined by the functionalities of the considered system; it doesn't contain any dialog and is written in a classic programming language like C++ or PASCAL.
- dialog : it contains all the information about the external aspect of the man-machine interface.
- global control : aided by a set of rules, it manages the transition between the dialog and the computation components.

In a third part, SACADO is constructed around two kinds of generators ([9]) :

- primary generators : their goal is to complete a class of actions already implemented.
- application generators : their aim is to create a new implementation. Each component of the system has to be defined; the dialog must be described and the actions must be created.

The main difference between these two kinds of generators is that primary generators enrich any existing implementation, while application generators facilitate the definition of new kinds of actions or dialogs without - a priori - any knowledge on an implementation scheme.

III. THE DIALOG AND ARCHITECTURE GENERATOR (DAG)

The DAG has two objectives :

- implement the software architecture.
- describe the dialog of the considered implementation.

On one hand, it must follow few dialog principles :

- all applications developed with the DAG have to use the same dialog concepts in order to guaranty the independence versus applications.
- a minimum of constraints has to be prescribed to the end-user in order to facilitate the use of the system.
- the end-user has to be limited the least possible in his behaviours; thus, a minimum of adjustement is required from him.

On the other hand, the DAG must help for the development of applications :

- the definition of the dialog is interactive through an interactive tool usable without learning any textual language.
- the extension of the system is facilitated by the immediate test of the new architecture.

A. The single interactive primitive : INTERACTION

A CAD/CAM system has a complex functions model whose execution is constantly interrupted by actions of the end-user (called interactions). Thus, to link the dialog and the possible end-user actions (with maximum freedom), we have considered a single interactive primitive called INTERACTION. Every interaction will be executed by a call to this primitive with appropriate parameters; so, the dialog is events driven (every end-user interaction is a data or considered like data) .

The result of an interaction will be determined according to the different behaviours of the end-user :

- menu choosing : it is considered as a choice (following specific definitions, presented in III.C).
- in any other cases, the result will be according to the end-user specifications, such as :
  - only co-ordinates.
  - co-ordinates and object selected (with eventually a mask on classes of objects).
  - alphanumeric, ...

This methodology is quite different from the standard tools ones: in fact, it's a higher level approach which could be based on several tools like GKS or PHIGS for the graphic part.

B. The actions

In most systems, we can distinguish two kinds of actions; an action can be :

- interactive : it contains at least one interaction. Such action can eventually be interrupted.
- non interactive : it doesn't contain any call to INTERACTION. Such an action can't be interrupted by the end-user.

We define an action by an INTERACTIONs graph which nodes are interactions and arcs are labelled by non interactive actions.

Thereafter in the paper, we will use "action" in lieu and place of interactive or non interactive action.

C. The menus

We consider a set of menus by a hierarchical structure (n-ary tree) where nodes are general concepts and leaves elementary functionalities ([16], [17] and [18]).

All the defined menus of the considered system is called the application domain. This domain can be composed by several sets of menus. One of these sets, called main domain, defines the considered system and contains the basis menus; this set contains the menus which can be directly chosen by the end-user at the beginning of the application. The others sets are called annex domains; they permit the description of functionalities only used in a particular context and thus, they can't be chosen without passing through a menu of the main domain.

a. Classes of menus

Two classes of menus are defined; one menu can be :

- terminal : it is associated to an action.
- non terminal : it has sons (menus, eventually preceeded and followed by non interactive actions).

At any moment, a menu is valid (it can be chosen) or not valid.

b. Effects of menus

As seen at the beginning, the end-user may only influence the execution of the system when he interferes; thus, let's enumerate the different behaviours that a end-user may have when an interaction is required :

- to respond directly by a valid object (this is the standard behaviour).
- to execute a new action leaving the current action.
- to execute a new action without leaving the current action (by this way the current action is only suspended while the new action is executed; the zoom is an example of such an action).
- to execute a new action to respond to the interaction; in this case, the new action constructs the object required by the interaction (for example, the construction of a forbidden object).

To allow the three last cases, we introduce several menu effects. Each valid menu may have the three following kinds of effects for any given interaction :

- local : when such a menu is chosen, the execution of the associated action starts and, at the end, the object created by the actions of the local menu is considered as the result of the interaction.

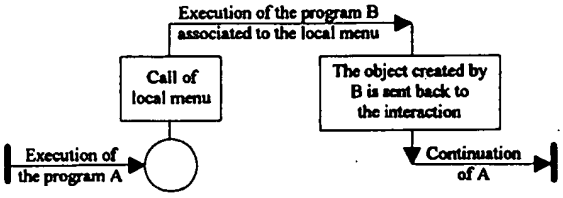


Fig. 3. Local effect

- immediate : when such a menu is chosen, the associated action is executed and, at the end, no object is sent back to the interrupted interaction by the actions of the immediate menu; thus, the interaction is reactivated.

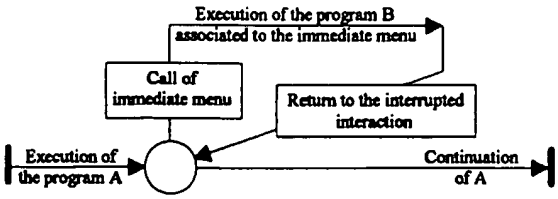


Fig. 4. Immediate effect

- differing : when such a menu is chosen, the current action is stopped (usually it failed but it must be terminated in good conditions) and the actions or sub-menus associated to the chosen menu are activated.

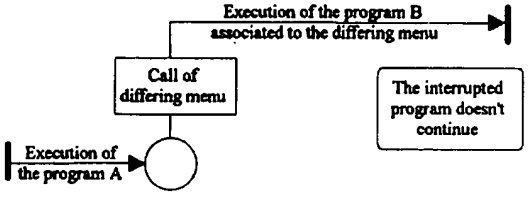


Fig. 5. Differing effect

Now, we define the term "compatibilities" by the set of effects defined for a menu or an interaction (local, immediate and differing).

The interface programmer can define the compatibilities between menus, the compatibilities inheriting from the father to his sons by respecting the following rules :

- except opposite indications, a son menu inherits his father's compatibilities.
- except opposite indications, the interactions inherit the compatibilities of the associated terminal menu.

But he can also define these compatibilities directly for the interactions.

Of course, these two methods can be mixed; in this case, we tell about refinement : the interface programmer specifies compatibilities obtained by inheritance.

c. Menus' complete structure

The menus' complete structure is obtained by the union between the domains (main and annex) and the compatibilities schemes.

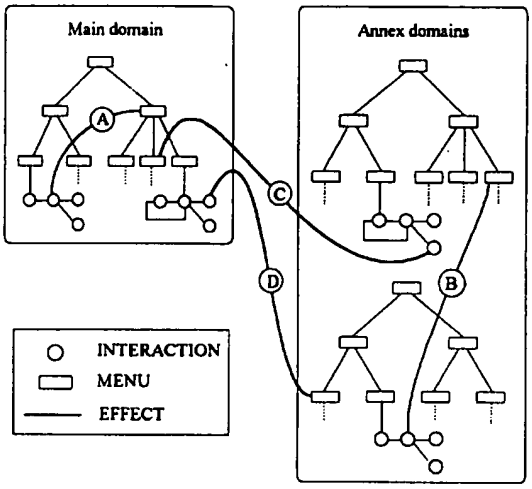


Fig. 6. Menu's complete structure

We must introduce one restriction concerning the different effects : by choosing a differing menu, it comes to its selection directly in its domain. But, as seen before, a menu of an annex domain can't be directly chosen by the end-user. So, we must forbid the use of the effect differing for all menus of the annex domains (links B and D in the above scheme). In the other cases (links A and C), there is no restriction.

The other effects (local and immediate) don't cause any trouble and can be used in all cases.

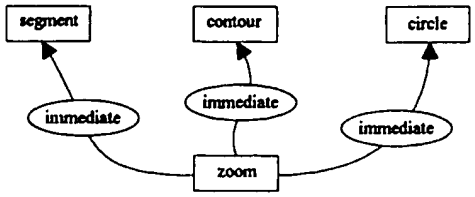
G. Example of a dialog

The following example presents the effect of an immediate menu and the flexibility of the SACADO architecture.

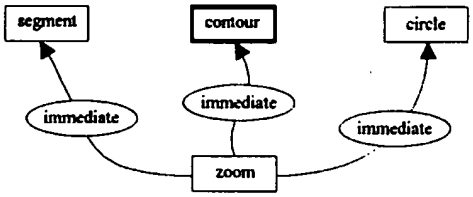
We suppose that the action of the menu **contour** is constituted by a loop on one interaction that asks for one object and this loop stops when the contour is closed.

The following symbols are used :

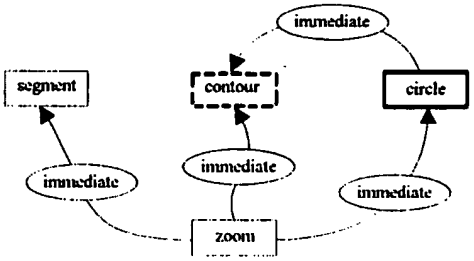
State of the SACADO architecture



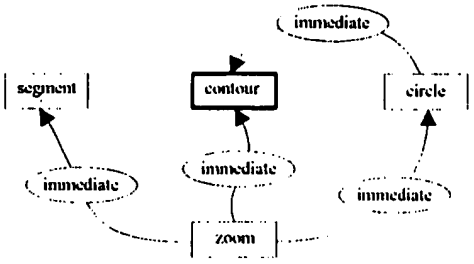
Main domain proposed to the end-user



The end-user has chosen the menu **contour**

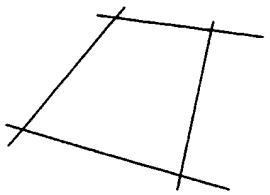


The end-user has added an immediate link between menus **contour** and **circle**
The end-user has chosen the menu **circle** (the menu **contour** is suspended)

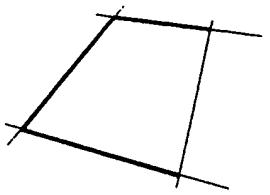


The control has returned to the menu **contour**

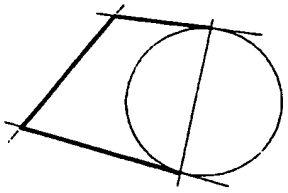
CAD/CAM model



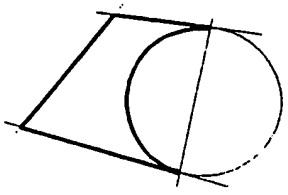
Objects modelled by the end-user



The end-user has chosen the three first segments of the contour



The circle has been created and drawn



The end-user has chosen the circle and the contour is now finished; thus, the action of the menu **contour** stops

IV. CONCLUSION

An end-user oriented method to design interfaces for CAD/CAM system has been described. It is based on an original approach with different kinds of menus and a single interaction. Its principal interest is to permit an application oriented definition of the dialog and of the architecture of the software. The dialog can be interactively modified by the end-user to be in accordance with its view of the application and its degree of knowledge.

This approach has been soon proved to be interesting through a prototype of SACADO. This paper has described a more formalized version using NADRAG. The NADRAG language is invisible for the end-user, but is necessary in order to model the dialog. An interactive graphic interface (based on X) is offered to model the menus and the architecture of the interaction.

The NADRAG language is completely defined (although not described in this paper) and the interactive tool to describe the menus is operational. The last tool (description of the architecture of the interaction) is currently developed.

Future work will focuse on the integration of these tools in a coherent system and its use to implement a complete application oriented CAD/CAM system.

REFERENCES

[1] M. BORDEGONI, U. CUGINI, C. RIZZI, A visual programming tool for the construction of man-machine interface, Acts of MICAD 92, pp. 129-143

[2] H. R. HARTSON, D. HIX, T. M. KRALY, Developping Human-Computer interface models and representation techniques, Software-Practice And Experience, Vol. 20, Num. 5, May 1990, pp. 425-457

[3] E. KANTOROWITZ, O. SUDARSKY, The Adaptable User Interface, Computing Practices, Vol. 32, Num. 11, November 1989, pp. 1352-1358

[4] M. WILSON, A. CONWAY, Enhanced Interaction Styles for User Interfaces, IEEE Computer Graphics & Applications, March 1991, pp. 79-90.

[5] T. DUVAL, Interfaces homme-machine : évaluation du modèle d'architecture logicielle PAC, Revue internationale de CFAO et d'infographie, Vol. 6, Num. 2, 1991, pp. 113-134

[6] M. GREEN, A Survey of Three Dialog Models, ACM Transactions on Graphics, Vol. 5, Num. 3, July 1986, pp. 244-275

[7] C.A. WOOD, P.D. GRAY, A.C. KILGOUR, Experience with Chrisl, a Configurable Hierarchical Interface Specification Language, Computer Graphics Forum, Vol. 7, pp. 117-127

[8] P. E. HAEBERLI, ConMan : A Visual Programming Language for Interactive Graphics, Computer Graphics, Vol. 22, Num. 4, August 1988, pp. 103-111

[9] Y. GARDAN, J.-P. JUNG, A new kind of generators for CAD/CAM, CARS & FOF 90, NORFOLK, VA, USA.

[10] M. C. MAGUIRE, A Review of Human Factors Guidelines and Techniques for the Design of Graphical Human-Computer Interfaces, Computer Graphics, Vol. 9, Num. 3, 1985, pp. 221-235

[11] D. L. SANFORD, J. W. ROACH, A Theory of Dialog Structures to Help Manage Human-Computer Interaction, IEEE Transactions on Systems, Man and Cybernetics, Vol. 18, Num. 4, July/August 1988, pp. 576-574.

[12] H. R. WEBER, Meditation on Man-Machine Interface or Our Personal Role in Graphics Dialog Programming, Computer Graphics, Vol. 9, Num. 3, 1985, pp. 237-245

[13] A. I. WASSERMAN, Extending State Transition Diagrams for the Specification of Human-Computer Interaction, IEEE Transactions on Software Engineering, Vol. SE-11, Num. 8, August 1985, pp. 699-713

[14] J. COUTAZ, Interfaces homme-ordinateur, conception et réalisation, Book, Dunod Informatique, Bordas 1990

[15] M. GREEN, The University of Alberta user interface management system, in Siggraph '85 Proceedings, ACM Computer Graphics, Vol. 19, Num. 3, July 1985, pp. 205-213

[16] J. D. ARTHUR, Toward a Formal Specification of Menu-Based Systems, The journal of Systems and Software 7, pp. 73-82

[17] D. L. FISHER, E. J. YUNGKURTH, STANLEY M. MOSS, Optimal Menu Hierarchy Design : Syntax and Semantics, Human Factors, Vol. 32, Num. 6, 1990, pp. 665-683

[18] P. SHOVAL, Functional design of a menu-tree interface within structured system development, Man-Machine Studies, Vol. 33, pp. 537-556

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1 **An end-user oriented approach to design man-machine interfaces for CAD/CAM**
Gardan, Y.; Jung, J.-P.; Martin, B.;
Systems, Man and Cybernetics, 1993. 'Systems Engineering in the Service of H Conference Proceedings., International Conference on , 17-20 Oct. 1993
Page(s): 525 -530 vol.3

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be affirmed (where a client application presents such a document transaction or statement to the system of the present invention); and iv) understands the undertaking of an event or the provisions within the document, transaction or statement and the consequences of affirming it. The system of the present invention is flexible and can be configured to accept all types of biometric, infometric and cryptographic signatures or affirming acts, such as those created by passwords, secret cryptographic keys, unique secret numbers, biometric recordings such as handwritten signatures or other biometric information, or multi-media recordings of affirming statements. It also permits the affirmation procedure to be tailored to the specifics of a client application through the use of an authentication policy component.

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